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KENTUCKY SOLID WASTE MANAGEMENT PLAN - STATUS REPORT, 1970

Kentucky Department of Health
Frankfort, Kentucky

1971

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KENTUCKY

SOLID WASTE MANAGEMENT PLAN

Status Report 1970

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by the Kentucky State Department of Health for
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FOREWORD

TO ENCOURAGE SYSTEMATIC PLANNING for better management of the Nation's solid wastes, Congress in the 1965 Solid Waste Disposal Act provided grant monies for the States for solid waste planning.[1] By June 1966, fourteen States had met the stipulations of the Act and had embarked upon the planning process with the help of the Federal funds. Today, almost every State has applied for and received a solid waste planning grant.[2] From each of the grants the Federal government expects two practical results: first, a plan (and report) for the State's management of its solid wastes; second, development of an agency for the managing function.[3]

The present document describes the past practices and the environmental basis for the Kentucky solid waste management plan, developed by the State under a Federal solid waste management planning grant that went into effect June 1, 1966. The data reported on in the first part of the book provide the base for the courses of action recommended at the end of the volume. But, the planning process is dynamic; future revision will be an important part of the process to take account of changing conditions and better data. Moreover, a plan is not an end in itself. Its formulation is the key to action: to legislation, standards, technical assistance, public relations, and enforcement.

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[1] The Solid Waste Disposal Act; Title II of Public Law 89-272, 89th Congress, S.306, October 20, 1965. Washington, U.S. Government Printing Office, 1966. 5 p.

[2] Toftner, R. O., D. D. Swavely, W. T. Dehn, and B. L. Sweeney, *comps.* State solid waste planning grants, agencies, and progress--1970; report of activities through June 30, 1970. Public Health Service Publication No. 2109. Washington, U.S. Government Printing Office, 1971. 26 p.

[3] Toftner, R. O. Developing a state solid waste management plan. Public Health Service Publication No. 2031. Washington, U.S. Government Printing Office, 1970. 50 p.

Besides providing the State solid waste management agency with a guide for action, the State plan will help to guide local and regional solid waste planning and subsequent implementation. The plan can also provide support for improved State legislation related to solid waste management.

Kentucky's plan is designed, therefore, to: (1) begin the planning process; (2) establish policies and procedures to guide the State solid waste agency, the Division of Environmental Health; (3) guide regional planning; (4) provide a documented base for improved solid waste legislation and operating regulations. With these objectives in mind, this plan report presents and analyzes pertinent solid waste data, identifies problems indicated by the data, sets objectives that if achieved would solve identified problems, and finally, proposes immediate, intermediate, and long-range measures for achieving objectives. This plan should thus provide the Kentucky solid waste agency with an invaluable management tool with which to begin solving the State's solid waste management problems.

--RICHARD D. VAUGHAN
Assistant Surgeon General

SUMMARY

This Program represents Kentucky's first efforts to develop the coordination and cooperation needed to solve the complex and rapidly expanding problems related to the safe handling and disposal of solid waste. Solid waste is a term given to any unwanted solid material. The average person still uses the term "garbage" to refer to his household waste, but in today's world garbage is a very small part of the waste generated in the average home. Moreover, household waste is a relatively small part of a community's total solid waste problem. Local institutions, commercial establishments, local industries and the government itself all produce waste of many different types. Outside of communities, agriculture and mining activities must be added to the list of waste producers and the problems of solid waste management. Much of this solid waste must be handled and disposed of by different techniques if the public health and the natural environment are to be protected.

The development of safe and efficient means for handling and disposing of waste requires a high level of technical competence. All those who work with solid waste and those who make decisions regarding the collection and disposal of this waste must understand the technical complexities and environmental relationships associated with sound solid waste management practices. The development of this competence will be a major task of those participating in Kentucky's Comprehensive Solid Waste Management Program.

Problems related to the handling and disposing of solid waste cannot be separated easily from air pollution and water pollution problems. The manner in which Kentucky's air, land and water are managed are determining the quality of health enjoyed by the Commonwealth's people. Many ecologists have already issued strong warnings that the attitudes of past generations and their methods for dealing with environmental problems cannot be tolerated if human life on this planet is to survive. While their fears may be overemphasized, only as individuals develop a technical understanding of the interrelationships between the rapidly developing environmental hazards, which affect both human life and those things upon which life depends, can realistic decisions be made to protect Kentuckians and their living environment.

The safe disposal of solid waste, both as an environmental problem and as an economic problem, extends beyond the political jurisdictions of communities and counties. The manner in which waste is disposed of in one community affects the lives of people in the adjacent county and other nearby counties. The improper disposal of solid waste can very rapidly result in the spread of disease organisms or toxic agents through the air or water or via the various forms of animal life which frequent disposal sites.

Section II of this document, *The Kentucky Environment*, and Section III, *Solid Waste Management Practices in Kentucky*, briefly summarize the physical, social and economic conditions and solid waste management practices in the Commonwealth. Section V, *Problems and Needs*, outlines the major problem areas and recommended courses of action essential to improved solid waste management practices and their effective regulation. Together, these three sections present an overview of the problems related to solid waste management in Kentucky.

The Comprehensive Solid Waste Management Program will require the coordinated efforts of numerous state agencies, local governments and private individuals. Effective solutions to the numerous problems related to solid waste can be developed only when all efforts are coordinated. The General Assembly has given the responsibility for this coordination function to the Solid Waste Program, Kentucky State Department of Health. The required inter-agency and inter-governmental coordination are presented in Section IV, *Responsibilities for Solid Waste Management in Kentucky*. Section VI, *The Kentucky Solid Waste Management Plan*, outlines the Solid Waste Program's planned activities in regard to its responsibilities during the period 1970-1974.

The Solid Waste Program, as a part of the Environmental Health Division, Kentucky State Department of Health, presently must perform its coordination role from a disadvantaged position. To improve the coordination capabilities required to accomplish the Comprehensive Solid Waste Management Program, the solid waste functions in the Kentucky State Department of Health, require at least a Division level status. Similarly, the Department's broad range of environmental health activities warrant administration from a Deputy Commissioner level. Moreover, because of the complex interrelationships of the Solid Waste Program's function with other State environment oriented agencies, an Interdepartmental Task Force will be necessary to clarify and evaluate the State governmental structure related to the control of Kentucky's environment. This Task Force should also determine the benefits of establishing a single State agency responsible for the protection and enhancement of the Commonwealth's environmental resources.

The development of improved solid waste management practices in Kentucky will require close coordination and cooperation among the Commonwealth's several counties and communities. The 15 regional Comprehensive Health Planning Councils can effectively function as the local review organization for federally sponsored environmental health activities in Kentucky. Still needed are the Environmental Resource Councils which can evaluate other local environmental resource development requirements.

The Kentucky State Department of Health can develop essential programs to improve solid waste management practices. It can also undertake efforts to coordinate and improve the effectiveness of regulatory activities among the several State agencies and local jurisdictions with responsibilities related to solid waste. The cooperative activities of all agencies, organizations and individuals with various responsibilities constitute Kentucky's Comprehensive Solid Waste Management Program. The level of coordination and cooperation achieved in the coming years will be a measure of the Kentuckians' concern for themselves and for the development of this Commonwealth.

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I. INTRODUCTION

This Report and its companion Appendices presents the initial Comprehensive Solid Waste Program in Kentucky. This effort culminates three years of initial planning work by the Solid Waste Program, Kentucky State Department of Health.

In February 1968, the Kentucky General Assembly passed the Kentucky Solid Waste Disposal Act. Under this law, the Solid Waste Program was charged with securing, for the Commonwealth, the benefits of the Federal Solid Waste Disposal Act as it exists or is amended. This included the administration of loans and grants from the Federal Government and other sources. It also required that the Solid Waste Program function as the Commonwealth's administrative agent for statewide, regional, and local planning; demonstration projects; and research and construction loans and grants provided by all agencies of the Federal Government for solid waste related projects.

The Bureau of Solid Waste Management, U. S. Department of Health, Education, and Welfare, (*HEW*), financially assisted the Solid Waste Program during its first three years of operation. Under Federal directives, the three-year period was to be devoted to the development of a Comprehensive Solid Waste Management Program within the Commonwealth. The assistance provided to Kentucky by the Bureau of Solid Waste Management (*HEW*) has permitted the Commonwealth to clarify the complexities of regulating solid waste management practices in Kentucky. A seemingly simple activity has been revealed as an extremely complex and penetrating problem that grossly affects the health and welfare of all Kentuckians. Moreover, haphazard practices previously acceptable are being revealed as hazards to both Kentucky's population and the Commonwealth's natural environment.

Since 1965, the Bureau of Solid Waste Management (*HEW*) has encouraged and assisted a wide variety of research projects to determine the extent of solid waste related problems and the means for correcting them. In 1970 only a trickle of the research findings have become available but these are enough to provide warnings of the extent of solid waste related problems. Bringing the results of this new research to the attention of State agencies, local governments, and the people of Kentucky will be a major function of the Solid Waste Program in the coming years.

II. THE KENTUCKY ENVIRONMENT

CLIMATE

The Kentucky climate is characterized by warm-to-hot summers and moderately cold winters. Across the Commonwealth*, the normal daily average temperature in January generally ranges between 35°F and 40°F, with average daily maximums close to 50°F and average daily minimum temperatures of about 25°F. The July normal daily average temperature will range between 75°F and 80°F. In the northeastern part of Kentucky average daily minimum temperatures in July can be expected to fall below 65°F, while in the southwest corner of the Commonwealth, average daily maximum temperatures in excess of 90°F can be expected.

Annual precipitation is abundant and fairly well distributed throughout the various seasons of the year. The northern part of the State, along the upper part of the Ohio River Valley, has a mean annual precipitation of about 40 inches. The amount of precipitation increases to 50 inches in the south, resulting in an approximate annual average of 45.6 inches for the Commonwealth. Thunderstorms most frequently occur from March through September. The average annual total amount of snowfall ranges from 20 inches in the northeast to about 10 inches in the far southwest; the snow seldom remains on the ground for more than a few days.

The most severe climatic conditions affecting solid waste collection occur generally in the eastern third of the Commonwealth where sleet and snow, in combination with hilly terrain, intensify transportation hazards. The numerous frontal conditions which cross Kentucky during winter months result in a cyclical pattern of rain, snow, freeze, and thaw. During the spring months, when freezing conditions are absent and the ground is wet and soft, sanitary landfill operations throughout the Commonwealth can be expected to operate at reduced efficiencies.

NATURAL REGIONS AND AREA DEVELOPMENT DISTRICTS

The sanitary landfill process will be the primary ultimate disposal method for solid waste throughout Kentucky. The character of land forms, geology, and soils substantially affects the engineering requirements needed to control potential water pollution or obstructions to surface water movement at solid waste disposal sites. The following brief review relates the generalized physiographic characteristics found in the Commonwealth of Kentucky's counties and Area Development Districts (*ADD's*). These Districts comprise the framework within which regional solid waste management planning efforts are being developed. While

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*The information presented in this section on environment is primarily from, "Land Areas of Kentucky and Their Potential for Use Map," Agricultural and Industrial Development Board of Kentucky, Frankfort, 1953.

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these generalized physiographic characteristics outline numerous physical differences among the 15 *ADD's*, specific physical differences occurring at each proposed solid waste disposal site demand substantial engineering evaluations before its acceptability can be determined. The lack of such evaluations for the hundreds of open dumps scattered across Kentucky makes each a potential health hazard and a probable source of environmental pollution.

Five basic physiographic regions (*see Figure 1*) exist within Kentucky and are identified as the Jackson Purchase, the Mississippian Plateau, the Western Coal Field, the Bluegrass, and the Eastern Coal Field. The general land surface of the State has been characteristically described as badly eroded plateau areas which slope gradually towards the southwest. As a result, the hilliest areas are in eastern Kentucky, while the westernmost part of the Commonwealth is part of the floodplain of the Mississippi River.

The Jackson Purchase region contains within its boundaries all of the counties comprising the Purchase Area Development District. The different physiographic elements of the region are presented below in Table l.

Table l
The Jackson Purchase Physiographic Region

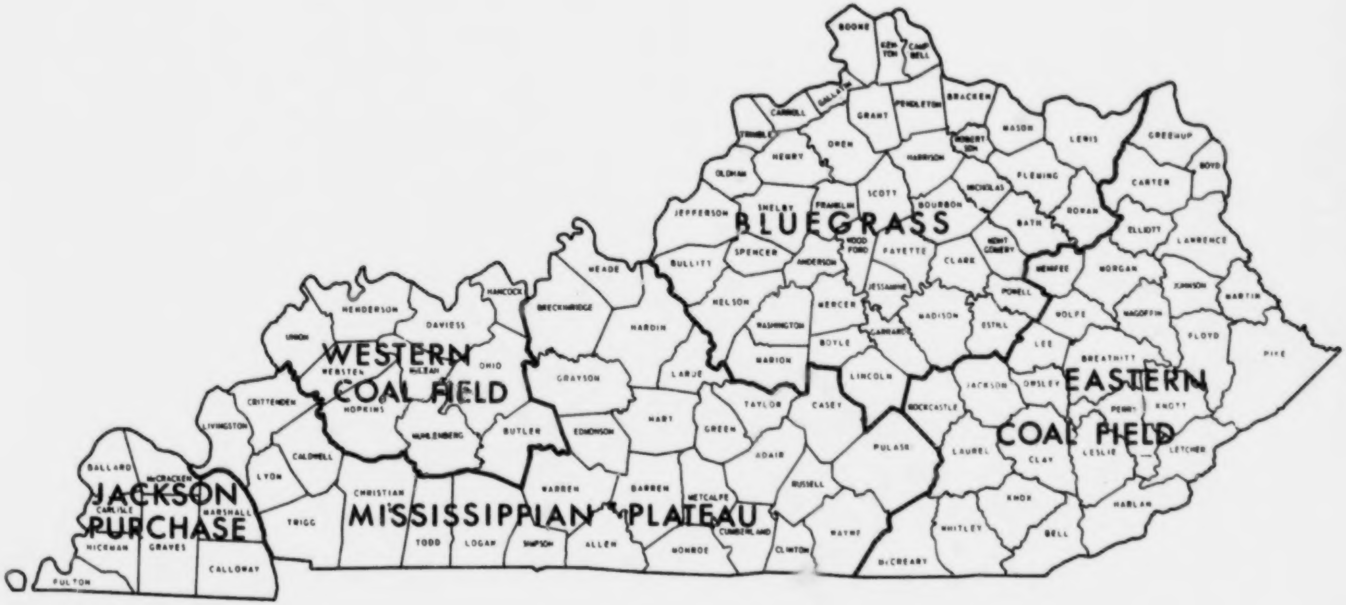
Subdivision	*Topography*	*Geology*	*Water Drainage Within Soils*
Breaks of the Tennessee	hilly	gravels loess	very rapid to medium
Central uplands and bottomlands	undulating to rolling	gravels, sands, clays, loess	slow to medium
Delta	level	Mississippi River sediments	

Source: Land Areas of Kentucky and Their Potentials for Use Map.

The Mississippian Plateau region is composed of the Lake Cumberland Area Development District with the exception of McCreary County; the Barren River Area Development District with the exception of Butler County; the Lincoln Trail Area Development District with the exception of Nelson, Washington, and Marion Counties; and the Pennyrile Area Development District with the exception of Hopkins and Muhlenberg Counties. The various physiographic elements of the different subdivisions included in the region are presented in Table 2.

The Western Coal Field region encompasses the Green River Area Development District, as well as Butler County of the Barren River Area Development District and Hopkins

Figure 1


BLUEGRASS
EASTERN COAL FIELD
WESTERN COAL FIELD
MISSISSIPPIAN PLATEAU
JACKSON PURCHASE
BOONE
KENTON
CAMPBELL
GALLATIN
CARROLL
TRIMBLE
GRANT
PENDLETON
BRACKEN
MASON
LEWIS
GREENUP
BOYD
ROBERTSON
OWEN
HENRY
OLDHAM
HARRISON
FLEMING
CARTER
SCOTT
NICHOLAS
SHELBY
FRANKLIN
BOURBON
JEFFERSON
ROWAN
ELLIOTT
LAWRENCE
BATH
WOODFORD
FAYETTE
SPENCER
ANDERSON
MONTGOMERY
CLARK
BULLITT
MENIFEE
MORGAN
JOHNSON
MARTIN
NELSON
JESSAMINE
POWELL
MERCER
WOLFE
MAGOFFIN
MADISON
WASHINGTON
ESTILL
GARRARD
FLOYD
BOYLE
LEE
PIKE
MARION
BREATHITT
LINCOLN
JACKSON
OWSLEY
KNOTT
PERRY
CASEY
ROCKCASTLE
LARUE
TAYLOR
HART
GREEN
PULASKI
LAUREL
CLAY
LESLIE
LETCHER
ADAIR
RUSSELL
BARREN
METCALFE
KNOX
HARLAN
WHITLEY
BELL
WAYNE
CUMBERLAND
MONROE
CLINTON
McCREARY
HENDERSON
DAVIESS
HANCOCK
BRECKINRIDGE
MEADE
HARDIN
UNION
WEBSTER
McLEAN
OHIO
GRAYSON
HOPKINS
CRITTENDEN
LIVINGSTON
MUHLENBERG
BUTLER
EDMONSON
CALDWELL
BALLARD
McCRACKEN
LYON
CHRISTIAN
WARREN
CARLISLE
MARSHALL
TRIGG
HICKMAN
GRAVES
TODD
LOGAN
SIMPSON
ALLEN
CALLOWAY
FULTON

General Natural Environment
Physiographic Regions of Kentucky

and Muhlenberg Counties of the Pennyrile Area Development District. Table 3 presents the various physiographic characteristics of the region by subdivision.

Table 2
The Mississippian Plateau Physiographic Region

Subdivision	*Topography*	*Geology*	*Water Drainage Within Soils*
Eastern Pennyroyal	rolling hilly karst	limestones shales siltstones	medium to slow
Western Pennyroyal (Limestone)	karst undulating	limestones loess	medium
Western Pennyroyal (Ss.-Sh.-Ls.)	undulating to hilly	sandstones shales limestones loess	slow to medium
Cumberland-Tennessee River Area	hilly	gravels limestones loess	very rapid to medium

---

Source: Land Areas of Kentucky and Their Potentials for Use Map.

Table 3
The Western Coal Field Physiographic Region

Subdivision	*Topography*	*Geology*	*Water Drainage Within Soils*
Interior low hills and bottomlands	level to undulating	sandstones shales limestones alluvium	slow
Bordering hilly uplands	rolling hilly	sandstones shales loess	slow to rapid

---

Source: Land Areas of Kentucky and Their Potentials for Use Map.

The Bluegrass region encompasses the Northern Kentucky, Buffalo Trace, Jefferson, and Bluegrass Area Development Districts (*see Figure 2*). Also included in the region are Montgomery, Bath, and Rowan Counties of the Gateway Area Development District and Nelson, Washington, and Marion Counties of the Lincoln Trail Area Development District. Table 4 presents the various physiographic characteristics of the region by subdivision.

Table 4
The Bluegrass Physiographic Region

Subdivision	*Topography*	*Geology*	*Water Drainage Within Soils*
Inner Bluegrass	undulating to rolling	limestones	medium
Hills of Bluegrass	hilly to rolling	limestones calcareous shales	slow
Outer Bluegrass	rolling to undulating	argillaceous limestones	medium
Knobs	hilly and level	limestones shales fine-grained sandstones	very slow to slow

Source: Land Areas of Kentucky and Their Potentials for Use Map.

The Eastern Coal Field region* contains the FIVCO, Big Sandy, Kentucky River, and Cumberland Valley Area Development Districts, as well as Menifee and Morgan Counties of the Gateway Area Development District and McCreary County of the Lake Cumberland Area Development District. The different physiographic characteristics of the region are described in Table 5.

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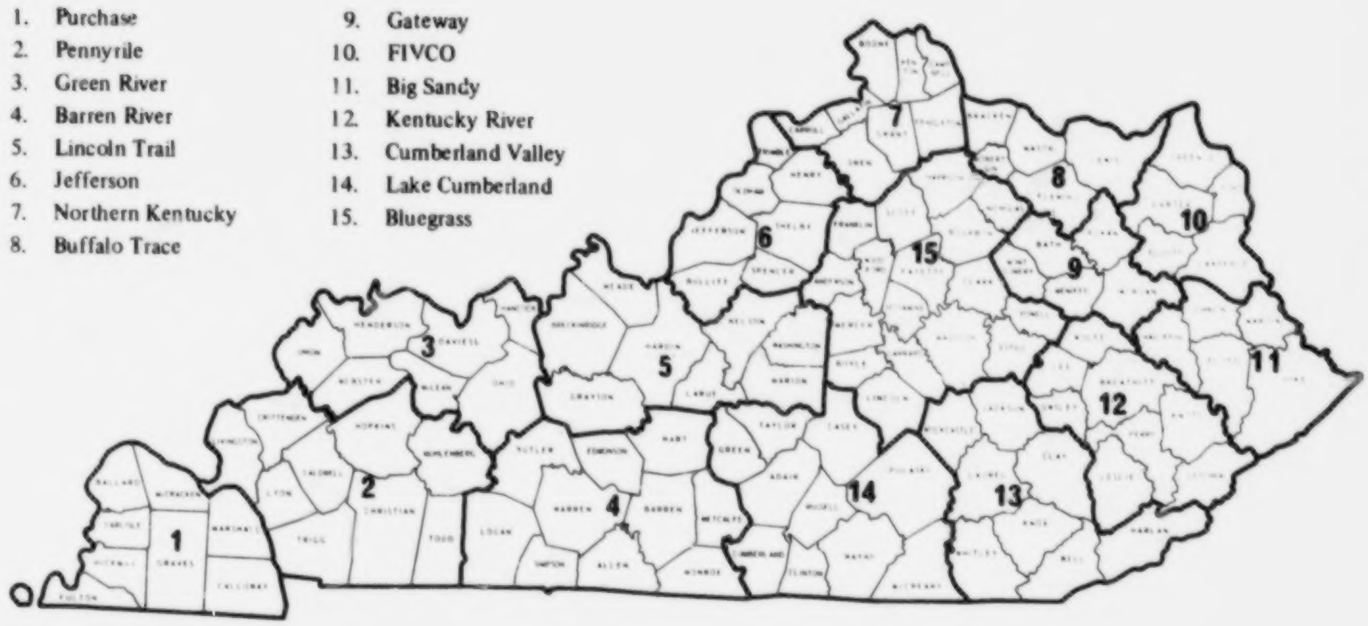
*This region has also been referred to as the Cumberland Plateau or the Eastern Mountains and Coal Field.

Figure 2


1. Purchase
2. Pennyrile
3. Green River
4. Barren River
5. Lincoln Trail
6. Jefferson
7. Northern Kentucky
8. Buffalo Trace
9. Gateway
10. FIVCO
11. Big Sandy
12. Kentucky River
13. Cumberland Valley
14. Lake Cumberland
15. Bluegrass

Commonwealth of Kentucky Area Development Districts
(*ADD's*)

Table 5
The Eastern Coal Field Physiographic Region

Subdivision	*Topography*	*Geology*	*Water Drainage Within Soils*
Mountain and creek bottom area	mountainous	sandstones shales	medium
Plateau area	rolling mountainous	sandstones shales	slow
Escarpment area	hilly	sandstones shales	medium

Source: Land Areas of Kentucky and Their Potentials for Use Map.

AREA DEVELOPMENT DISTRICTS AND LOCAL GOVERNMENTS

The large number of small political jurisdictions and the welter of overlapping commission and agency regional jurisdictions prompted the establishment of the Area Development Districts in the late 1960's. The District boundaries are now the common regional areas for all substate planning and development efforts in Kentucky. Regional solid waste management planning efforts are being developed to conform with these planning areas. The *ADD's* will have as their primary goal the development of operational solid waste services coordinated through a variety of interlaced agreements among the communities and counties.

The Kentucky Program Development Office (*KPDO*), as the Governor's agency for statewide coordination, has the primary responsibility for developing regional coordination efforts. To accomplish this task, *ADD* planning agencies have been established in all but three of the 15 designated regions. These are: the Jefferson, Northern Kentucky, and Bluegrass Area Development Districts. *KPDO* expects that these three Districts will be organized within the next biennium.

Other regional planning areas which have been organized in eastern Kentucky with the assistance of the Appalachian Regional Commission include the Buffalo Trace, Gateway, FIVCO, Big Sandy, Kentucky River, Cumberland Valley, and Lake Cumberland Area Development Districts. The remainder of the Commonwealth's *ADD's* were organized with the assistance of the Economic Development Administration and include the Purchase, Pennyrile, Green River, Lincoln Trail, and Barren River Area Development Districts.

Within these 15 regional planning areas, coordinating the efforts of 120 counties and the multiplicity of municipalities will be a major development task. Generally, the counties have small populations and also vary widely as to size. For example, Campbell County contains about 145 square miles while Pike County has an area of approximately 779 square miles. The average Kentucky county contains 333 square miles; however, 66 counties are smaller than this average.

Municipalities are usually very small with extremely limited economic bases. The General Assembly has directed that Kentucky municipalities are to be designated according to class, from Class I through Class VI. Class is determined by the population of the municipality at the time of the last federal census and by legislative action. According to its designated class, a city is delegated certain authority and powers which substantially affect its capability for performing its governmental functions. The base population for each class city appears in Table 6.

Table 6
Base Populations of the Six
Classes of Cities in Kentucky

Municipality Class	*Population*
I	100,000 or more
II	20,000 but less than 100,000
III	8,000 but less than 20,000
IV	3,000 but less than 8,000
V	1,000 but less than 3,000
VI	less than 1,000

Source: Kentucky Revised Statutes, Chapter 156.

Kentucky has 331 municipalities. Of these, 238, or over 71 percent, are 5th and 6th class cities. In 1960, Louisville was the only 1st class city in the Commonwealth; eight other cities were designated 2nd class. Eight of the 15 Area Development Districts did not have a single 1st or 2nd class city, and in three *ADD's* the largest municipalities were designated 4th class. The number of municipalities by class for each of the 15 *ADD's* is shown in Table 7.

POPULATION GROWTH TRENDS

Between 1960 and 2000 the population of Kentucky is expected to increase significantly. The more-than-3-million people recorded in the 1960 Census is expected to

Table 7
Kentucky Cities by Class and Area Development District
1970

Area Development District	*Number Counties With Cities**	*Number Counties Without Cities*	*Number of Cities*						*Total Number (All Classes)*
			Class I	*Class II*	*Class III*	*Class IV*	*Class V*	*Class VI*	
Purchase	8	0	0	1	2	4	5	9	21
Pennyrile	9	0	0	0	1	7	9	10	27
Green River	7	0	0	1	1	3	8	12	25
Barren River	10	0	0	1	0	3	5	9	18
Lincoln Trail	8	0	0	0	0	3	10	8	21
Jefferson	7	0	1	0	0	5	5	47	58
Northern Kentucky	8	0	0	2	2	10	13	23	50
Buffalo Trace	5	0	0	0	1	2	3	3	9
Gateway	4	1	0	0	0	3	1	2	6
FIVCO	4	1	0	1	0	4	5	2	12
Big Sandy	4	1	0	0	0	5	0	4	9
Kentucky River	8	0	0	0	1	2	4	3	10
Cumberland Valley	8	0	0	0	2	7	4	4	17
Lake Cumberland	9	1	0	0	2	1	9	3	15
Bluegrass	17	0	0	2	3	10	11	7	33
Total	116	4	1	8	15	69	92	146	331

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*"Cities" as defined by the Kentucky General Assembly refers to municipalities or incorporated places.

Source: Georgia Robles Boone, Kentucky Governmental Guide - 1970 (Madison, Tenn., 1970).

increase by 2.4 million people for a total population of about 5.5 million in the year 2000.* This substantial growth represents an 80 percent increase over Kentucky's 1960 population.†

Of the 15 *ADD's*, six can expect a population increase in excess of the growth rate anticipated for the Commonwealth from 1960-2000. These are the Barren River, the Bluegrass, the Pennyrile, the Jefferson, the Purchase, and the FIVCO Area Development Districts (*see Figure 3*).

The Barren River Area Development District, which, in area, is the second largest *ADD* in the State, is expected to be the growth leader with an anticipated increase of 159 percent. Every county in this District is expected to exceed the State's projected growth with Warren, Hart, Edmonson, and Metcalfe Counties even exceeding the Area Development District's average growth rate.

The Bluegrass Area Development District, largest in physical area, is the second fastest growing district with a 158 percent increase in population expected over the 40-year period from 1960-2000. Fayette, Jessamine, Madison, Powell, and Woodford Counties are all anticipated to grow at a faster rate than the average for the District, while all of the counties in this *ADD* are expected to exceed the State's anticipated 80 percent growth rate.

The Pennyrile and Jefferson Area Development Districts are the next fastest growing *ADD's* with expected increases of 99 and 90 percent, respectively, over the 40-year period. The Purchase and FICVO Area Development Districts represent the fifth and sixth fastest growing Districts in the State. Both are expected to have population increases in excess of the Commonwealth's expected growth rate from 1960-2000.

In the year 2000, the four largest *ADD's*, in terms of absolute number of residents, are expected to be the Jefferson, Bluegrass, Barren River, and Northern Kentucky Area Development Districts. Together these four Districts will account for 57.4 percent of the State's total population. The Jefferson and Bluegrass Area Development Districts alone are expected to make up 41.8 percent of the total population. The Bluegrass, Jefferson, and Northern Kentucky Area Development Districts also contain counties which are included in the Cincinnati, Lexington, and Louisville Standard Metropolitan Statistical Area (*SMSA's*). Fayette, Jefferson, Boone, Kenton, and Campbell are the constituent counties of these SMSA's.

In 1960, there were 11 counties in the State which had a population of 50,000 or more. By the year 2000 the number of counties in this category is expected to increase by 10 for a total of 21 counties with more than 50,000 persons. Table 8 provides a county comparison of different population sizes and the shifts that are expected to occur between 1960 and 2000.

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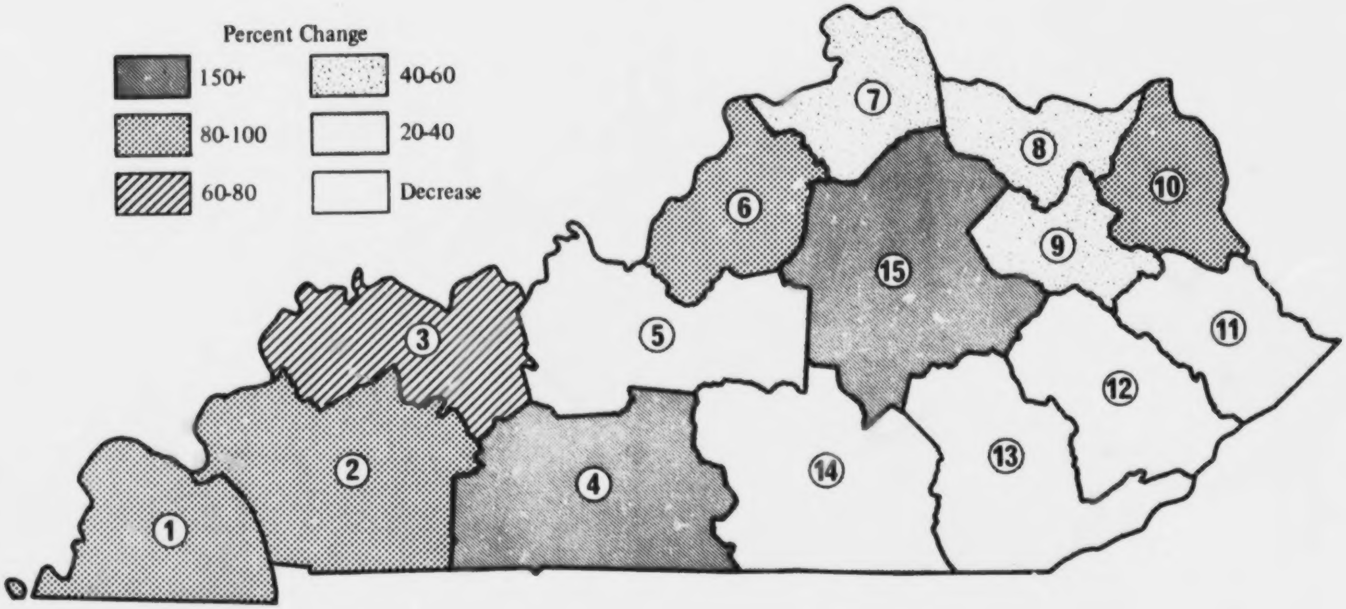
*"Population Projections of the Commonwealth of Kentucky By Selected Years," Table 1, Main Report Appendix.

†"Percent Change In Population of the Commonwealth of Kentucky," Table 2, Main Report Appendix.

Figure 3


Percent Change
150+
80-100
60-80
40-60
20-40
Decrease
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮

1. Purchase
2. Pennyrile
3. Green River
4. Barren River
5. Lincoln Trail
6. Jefferson
7. Northern Kentucky
8. Buffalo Trace
9. Gateway
10. FIVCO
11. Big Sandy
12. Kentucky River
13. Cumberland Valley
14. Lake Cumberland
15. Bluegrass

Population Change by Area Development District
1960-2000

Table 8
Comparison of the Number of Counties in Different Size Categories, 1960-2000

Number of Persons	*Number of Counties*	
	1960	*2000*
Less than 10,000	32	11
10,000 to 20,000	52	37
20,000 to 50,000	25	51
50,000 and over	11	21

Source: Bureau of the Census, County and City Data Book, 1967 (Washington, D.C.: U. S. Government Printing Office, 1967). Kentucky Program Development Office, Population Projections for the Commonwealth of Kentucky to the Year 2000 (Frankfort, Ky., June 1969).

CHANGING LAND-USE PATTERNS

The Commonwealth of Kentucky's land and water area total over 25 million acres, or more than 39,800 square miles. The categories of land use did not change significantly between 1958 and 1967. However, shifts between the categories did occur as indicated in Table 9.

Table 9
Land Use in the Commonwealth of Kentucky by Various Categories of Use, 1958 and 1967

	1958		*1967*		
Land Use	*Acres*	*% of State Total*	*Acres*	*% of State Total*	*% Change 1958-1967*
Cropland	6,804,769	26.7	6,586,738	25.8	- 3.2
Pasture	4,584,524	18.0	5,164,880	20.2	12.7
Forest	10,875,854	42.6	10,988,166	43.1	1.0
Other Land	1,563,311	6.1	767,706	3.0	-50.9
Federal Non-Cropland	832,702	3.3	1,047,416	4.1	25.8
Urban-Built-up	732,002	2.9	834,858	3.3	14.1
Small Water Areas	109,699	0.4	121,156	0.5	10.4
	25,502,901	100.0	25,510,920	100.0	

Source: Data presented above have been adjusted slightly from information provided by the U. S. Department of Agriculture, Soil Conservation Service.

Cropland, which makes up about one-fourth of the total acreage, declined over 3 percent, while forest land increased about 1 percent during this period. Pasture, which accounts for about one-fifth of the total crop acreage, increased over 12 percent, while federal non-cropland, which accounts for only 4 percent of the State's total, registered an increase of more than 25 percent.

Small water areas and urban and built-up areas increased over 10 and 14 percent, respectively, during the nine-year period. The "other land" category showed a decline of over 50 percent.*

The increase of over 14 percent in the urban and built-up land-use classification is indicative of the Commonwealth's increasing urbanization. This type of land is of special significance in solid waste management because of increases in population density with the accompanying increases in waste generation. In 1967, the Jefferson and Bluegrass Area Development Districts had a total of 102,908 acres and 98,655 acres, respectively, in this category. Together, these two Districts account for over 24 percent of the State's total acreage in urban and built-up areas. Other Districts with significant acreage in this classification include the Pennyrile and Northern Kentucky Area Development Districts, which, in 1967, had 94,522 acres and 89,165 acres, respectively.

ECONOMIC CHARACTERISTICS AND GROWTH TRENDS

By 1967 there were about 47,500 reporting industrial establishments in Kentucky (*see Table 10*). Trade and services dominated accounting for 68.4 percent of the industrial establishments in the Commonwealth. In many cases trade and services activities are included in municipally operated collection and disposal service systems. There is a similarity between solid waste generated by this segment of the economy and household refuse. Therefore, waste from trade and services activities and households constitute somewhat similar problems.

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*Soil Conservation Service definition of "other land" includes farmsteads, idle land, wildlife areas, and other areas not classified into cropland, pasture and range, forest and woodland, and urban and built-up areas. See U. S. Department of Agriculture, Soil Conservation Service, Kentucky Soil and Water Conservation Needs Inventory, (Kentucky Conservation Needs Committee), July 1962.

Table 10
Number of Industrial Establishments in Kentucky by SIC Industry Division, 1967

SIC Industry Division		*Number of Establishments**
Agriculture	(07-09)	328
Mining	(10-14)	1,183
Construction	(15-17)	4,535
Manufacturing	(19-39)	2,894
Transportation	(40-49)	2,110
Trade	(50-59)	20,175
Finance	(60-67)	3,955
Services	(70-89)	12,327
Total		47,507

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*Numbers are indicative only and, because of disclosure problems, incomplete.

Source: U. S. Department of Commerce, Kentucky County Business Patterns, 1967, (Washington, D. C., 1968).

Agricultural and manufacturing industries throughout Kentucky generate significant volumes of solid waste, some of which must be considered as hazardous. These two economic activities were represented by 3,222 establishments in 1967.

The majority of the establishments in the Agricultural Division are small operations which employ relatively few people, but these activities are generally concentrated in or near urbanized areas.* Of the 328 such industries listed in 1967, 165 are found in the Bluegrass, Jefferson, and Northern Kentucky Area Development Districts.† The types and volumes of waste and the practices related to their ultimate disposal from industrial establishments are presently unknown and are essentially unregulated.

Of the 2,894 manufacturing establishments in Kentucky in 1967, 643, or 22.2 percent, were very small and employed less than three persons per establishment. Manufacturing establishments employing more than 50 workers numbered 688 and represented 23.8 percent of all establishments in that Division. Manufacturing establishments are fairly well dispersed throughout the 15 *ADD's*, but 1,401, or slightly less than one-half, were located in the Bluegrass, Jefferson, and Northern Kentucky Area Development Districts. Again the types, volumes of waste, and ultimate disposal sites for waste generated by the various manufacturing processes in Kentucky are unknown and largely unregulated. Waste from some of these economic activities can be extremely hazardous while being stored transported, or finally disposed of.

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*"Number of Establishments in the State by Area Development District and Employee Size Category, 1967," Table 3, Main Report Appendix.

†"Number of Establishments in the State by Industry Division and Size Category, 1967," Table 4, Main Report Appendix.

Table 11 illustrates the distribution of economic enterprises among the 15 Area Development Districts. The Jefferson and Bluegrass Area Development Districts dominated with over 40 percent of all industrial establishments in the Commonwealth. While the remaining 60 percent were distributed among the other 13 Districts, no one District began to approach the dominant position of the two leaders. It should be recognized that while economic activities are well dispersed among the 15 Districts, they are usually concentrated in and around the major communities within each District.

Table 11
Number of Industrial Establishments in Kentucky by Area Development District, 1967

District No.	*Area Development Districts*	*Number of Establishments**
1	Purchase	3,063
2	Pennyrile	2,822
3	Green River	2,972
4	Barren River	2,937
5	Lincoln Trail	1,951
6	Jefferson	11,865
7	Northern Kentucky	3,756
8	Buffalo Trace	723
9	Gateway	692
10	FIVCO	1,552
11	Big Sandy	1,572
12	Kentucky River	1,106
13	Cumberland Valley	2,312
14	Lake Cumberland	1,863
15	Bluegrass	7,364
	Statewide†	955
	Total	47,505

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*Numbers are indicative only and, because of disclosure problems, incomplete.

†The Statewide classification reflects the number of establishments without a fixed location, with a significant number of employees in more than one county or of unknown county origin.

Source: U. S. Department of Commerce, Kentucky County Business Patterns, 1967, (Washington, D. C., 1968).

DISTRIBUTION OF ECONOMIC SECTOR EMPLOYMENT CHANGES AND TRENDS

Over the period from 1965 to 2000, total employment in the Commonwealth is expected to increase from 968,200 to 1,800,000 persons.* The additional employment projected represents an 84 percent increase over the 35-year period. Table 12 presents Kentucky employment by major economic activity for 1965 and 2000.

Table 12
Kentucky Employment by Major Economic Activity and Its Percentage Distribution for 1965 and 2000
(000's)

	1965		*2000*	
Activity	*Workers*	*% of Total*	*Workers*	*% of Total*
Agriculture	210.0	21.7	106.2	6.0
Mining	28.1	2.9	22.7	1.3
Manufacturing	206.2	21.3	540.0	30.2
Construction	47.3	4.9	98.6	5.5
Transportation, Communications and Utilities	54.0	5.6	47.9	2.7
Trade	155.3	16.0	339.5	19.0
Finance and Services	131.7	13.6	321.2	18.0
Government	135.6	14.0	309.6	17.3
Total	968.2	100.0	1,785.7	100.0

Source: Kentucky Program Development Office, Economic Analysis of the Commonwealth of Kentucky, 1960-2000 (Frankfort, Ky., June 1969).

The Table reveals the changing relative importance among the several economic activities. Employment will increase significantly in trade, construction, manufacturing, finance, and services. Conversely, declines can be expected in mining; agriculture; and the transportation, communications, and utilities sectors.

The largest relative decline will occur in the agriculture sector, while the largest relative gain will occur in the manufacturing sector. These expected changes reveal the increasing dominance of manfacturing in Kentucky.

All sectors in the manufacturing activity, with the exception of the food and lumber sectors, are expected to increase their employment over the 35-year period. Table 13 indicates that electrical machinery will have the greatest growth and will account for almost one-half of the total manufacturing employment projected for 2000. In addition, the clothing, textiles, and leather sector; the paper, printing, and publishing sector; and the chemicals, petroleum, coal, and rubber sector are all expected to have substantial increases in employment from 1965 to 2000.

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*The information presented in this section represents the high employment projections found in Kentucky Program Development Office, Economic Analysis of the Commonwealth of Kentucky, 1960-2000 (Frankfort, Ky., June 1969).

Table 13
Manufacturing Employment by Sector
1965 and 2000
(000's)

Sector	*1965*	*2000*
Food and Kindred Products	25.1	21.9
Tobacco	12.5	16.5
Clothing, Textiles, Leather	31.2	77.9
Lumber and Furniture	16.7	14.7
Paper, Printing, Publishing	12.7	56.7
Chemicals, Petroleum, Coal, Rubber	17.2	50.1
Stone, Clay, Glass	6.4	10.4
Primary Metals	11.1	17.3
Electrical Machinery	69.7	257.3
Miscellaneous	3.6	17.2
Total	206.2	540.0

Source: Kentucky Program Development Office, Economic Analysis of the Commonwealth of Kentucky, 1960-2000 (Frankfort, Ky., June 1969).

On a regional basis, the Bluegrass and Jefferson Area Development Districts, which contain the cities of Lexington and Louisville, are expected to experience the largest absolute gain in total employment during this time period. The Bluegrass Area Development District is expected to gain 224,400 workers, and the Jefferson Area Development District can anticipate a gain of 222,100 workers.

While the largest relative gain in employment—about 141 percent—is expected to occur in the Barren River Area Development District, the Pennyrile Area Development District should double its total employment.

RECENT TRENDS OF PER CAPITA AND TOTAL PERSONAL INCOME IN KENTUCKY

Per capita income in Kentucky increased from $1,552 in 1959 to $2,645 in 1968.* During this same period, the per capita income in the Southeast Region of the United States increased from $1,585 to $2,682. The per capita income for the United States as a whole increased from $2,161 in 1959 to $3,421. While Kentucky's percent increase (*70.4*) during this time period exceeded both the Southeast Region (*69.2*) and that of the United States (*58.3*), Kentucky's per capita income is still lower than that of its region and the nation. Therefore, the personal income of many Kentuckians remains relatively low and represents a restricted ability to pay for high-cost public services.

In 1968, five Districts in Kentucky exceeded the State's per capita income of $2,645. In addition, the Jefferson Area Development District's per capita income of $3,517 exceeded the United States figure of $3,421. The five Districts, in order of rank, include the Jefferson, Northern Kentucky, Lincoln Trail, Bluegrass, and Pennyrile Area Development Districts.

Kentucky's total personal income rose from $4.7 billion in 1959 to $8.5 billion in 1968. The Jefferson, Bluegrass, and Northern Kentucky Area Development Districts, together, accounted for 56 percent of the State's total personal income in 1968.

The numerous counties in Kentucky, with their relatively small populations and one or two small municipalities, emphasize the problems being faced in improving solid waste management. The substantially dispersed populations in rural areas and their typically low family incomes intensify the problems of developing adequate public services throughout much of the Commonwealth.

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*The information presented in this section is from University of Kentucky, Office of Development Services and Business Research, Kentucky Personal Income, State and County for Selected Years, 1929-1968 (Lexington, Kentucky, September 1969).

III. SOLID WASTE MANAGEMENT PRACTICES IN KENTUCKY

COMMUNITY PRACTICES

Most Kentucky counties usually have too few people and inadequate economic activities to be self-supportive. The 1960 Census of Population recorded less than 20,000 persons in 84 of the Commonwealth's 120 counties. With such a dispersed population in so many small towns, and with over 90 percent of total land area in crop, pasture and state or federal forest land, there has been relatively little local impetus to consider the disposal of solid waste as a problem. When the problem is recognized, the lack of technical and financial capabilities in small communities and counties generally forces well-meaning community fathers to ignore the problem.

However, Kentucky communities recognize the need to attract industries as a means for economic survival. Real estate promotional techniques have long been used to win new economic enterprises. In recent years, as industries have become more concerned about the disposal of their waste, communities have learned to describe their waste disposal areas in terms that are attractive to promotional efforts. Therefore, open dumps, almost categorically, have been called sanitary landfills. Sometimes more conservative communities have called their open dumps simply landfill operations.

In the past, consideration was seldom given to the future use of the land used as a dump. The dump was not recognized as detrimental or harmful to the health of nearby residents. The general practice was to put the town dump in that part of town or on that edge of town where nearby residents could do little about the situation. These circumstances still exist in Kentucky, and many communities, large and small, have been reluctant to change.

The Kentucky part of the "National Survey of Community Solid Waste Practices" was conducted during the summer of 1967. This pioneer effort illustrated the magnitude of many community problems relating to solid waste disposal. During 1969, in an effort to confirm and amplify this initial Survey, the Solid Waste Program, Kentucky State Department of Health, undertook additional surveys. All identifiable communities were contacted by mail, and necessary follow-ups were made by mail or personal interview. Of the 345 communities contacted, replies were obtained from 168, or 49 percent, of that total.*

Based upon 1960 Census data, the population within the respondent communities represented 41 percent of the total surveyed population. On the average, the survey represented 47 percent of all the communities identified in each Area Development District. The population in the respondent communities represented an average of 54 percent of all town or city residents in each District. While not complete, the information received provides a useful indication of community solid waste management practices in Kentucky.

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*"Community Survey Response, 1969," Table 5, Main Report Appendix.

INDIVIDUAL PRACTICES

In recognition of the Commonwealth's widely dispersed population, the Kentucky General Assembly added a section to the Kentucky Solid Waste Act, *K.R.S. 211.710*, which permits a person to dispose of solid waste from his own household upon his own land, as long as such disposal does not create a nuisance or hazard to health. The Kentucky Air Pollution Control Commissions's regulations permit the use of backyard waste burners having a capacity of two bushels (*four cubic feet*) for the burning of rubbish, but not garbage.*

While it may be assumed that the typical farmer probably disposes of his solid waste upon his own property, there is little indication that this is the practice of the average rural non-farm resident. Information presented in this Section on disposal sites will illustrate this point.

In an effort to determine the extent ot backyard burning practices, the National Survey found that in 68 percent of the 99 communities inventoried, backyard burning was practiced and was regulated in 42 percent of the communities. In the Solid Waste Program's 1969 Survey, 44 percent, or 68 of the 168 respondent communities indicated that the practice was permitted.† However, these were predominantly small communities representing less than 10 percent of the respondent community population. In contrast, the National Survey indicated that almost 51 percent of the urban population resided in communities which permitted backyard burning. This difference in Survey results remains to be clarified.

HOUSEHOLD COLLECTION PRACTICES

In its 1969 Survey, the Solid Waste Program asked for information on the number of communities with compulsory household collection of solid waste. Eighty of the 168 respondent communities, or over 47 percent, indicated that household collection was required. However, these 80 communities contained less than 30 percent of the total population in the communities responding to the questionnaire.**

Among those communities with compulsory household collection, 46 indicated that the community provides public collection services.†† The remaining 34 communities apparently provide collection service through contract or franchise arrangements with private collectors. However, 105 communities, or over 62 percent of the respondents, indicated that some form of household collection is provided by private collectors. On the average, slightly less than 2,500 places were served by public collection in each community, while the average private collector served roughly 450 places. The number of different communities a private collector might serve could not be determined from this Survey, but it must be assumed that such collectors probably provide service to several small communities within their operational territories.

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*Garbage was defined as putrescible animal and vegetable matter accumulated by a family in a resident in the course of day-to-day living.

†"Respondent Communities Which Permit Backyard Burning, 1969," Table 6, Main Report Appendix.

**Respondent Communities With Compulsory Household Collection, 1969," Table 7, Main Report Appendix.

††"Respondent Communities With Residential Collection, 1969," Table 8, Main Report Appendix.

The 1967 National Survey indicated that over 41 percent of the surveyed communities, with more than 51 percent of the surveyed urban population, were served by public collection service. While the Solid Waste Program Survey information is not directly related to population, almost 70 percent of the residential places with collection service were served by public systems. However, it must be emphasized that only 30 percent of the respondent population lived in communities requiring household collection.

COMMERCIAL COLLECTION PRACTICES

The results of the Solid Waste Program Survey indicated that 24 percent, or 41 of the 168 respondent communities provided public collection for business and commercial establishments.* However, 136, or 82 percent, indicated that business and commercial establishments are provided collection by private collectors. From these results, it is apparent that some communities with public collection also have business and commercial establishments served by private collectors and that the majority of communities depend upon private collection service.

Public collection services are provided to the majority of commercial establishments. The Solid Waste Program Survey noted that over 71 percent of the 11,800 commercial places with collection service were served by public systems. The National Survey results indicated that nearly 41 percent of the 99 communities surveyed had public collection service for commercial establishments. The results of these two Surveys indicate that it is customary for larger communities to provide partial or complete public collection of commercial waste and for smaller communities to be served by private collectors.

INDUSTRIAL COLLECTION PRACTICES

The National Survey recognized that most of Kentucky's process or manufacturing industries dispose of their own waste. Less than 36 percent of the communities, representing less than 50 percent of the total urban population surveyed, indicated that these industries were served by either public or private collection services. In the Solid Waste Program Survey of 1969, only 20 of the surveyed communities and 130 industrial establishments were served by public collectors.† This same Survey indicated that only 72 industrial establishments in 28 communities were served by private collectors. Since there are almost 3,000 manufacturing industries in Kentucky, most apparently dispose of their own solid waste.

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*"Respondent Communities With Business and Commercial Collection, 1969," Table 9, Main Report Appendix.

†"Respondent Communities With Industrial Collection, 1969," Table 10, Main Report Appendix.

Manufacturing enterprises produce a wide variety of solid waste, some of which must be considered as hazardous material. In some cases this waste is putrescible and can create problems. In other cases, discarded waste can be highly toxic and, if indiscriminately disposed of, can cause unusual and sometimes devastating injury to humans, animals, and the natural environment. Some waste with toxic characteristics is also water soluble and travel great distances as part of the local surface or groundwater supplies. The Solid Waste Program does not know how most industries in Kentucky dispose of their waste. A long-term program would be required to determine the character of industrial waste being produced throughout the Commonwealth, the hazards associated with such waste, existing techniques of disposal and the development of regulations to assure safe and yet economic means of industrial waste disposal.

INSTITUTIONAL PRACTICES

The 1967 National Survey of Community Solid Waste Practices found that among the 99 communities surveyed, roughly 54 percent indicated that their institutions were served by either public or private collection service. In an effort to augment this information, the Solid Waste Program conducted a Survey, through the local health departments in the Commonwealth's 120 counties, to identify solid waste practices used by hospitals and schools. From this Survey information was obtained for 1,926 public and private schools, with the exception of colleges and universities, and 136 public and private hospitals throughout the Commonwealth.

School Collection and Disposal Practices

The local public health sanitarians were requested to identify the collection and disposal practices used at each school. The results indicated that less than 56 percent of the schools in Kentucky were served by either public or private collection services.* Of those having collection services, about 27 percent reported private collection and 29 percent reported public collection. The majority of schools in Kentucky, 812, or over 42 percent, reported that school employees collect the solid waste for their respective schools. Presumably these employees transport the waste to a disposal site.

Of special significance were the responses to the method of disposal used by schools. Only 406 schools reported that solid waste is disposed of on the site. If 1,077 schools with some form of collection service have solid waste removed to a central disposal site, then the disposal method of more than 500 schools is still unknown.

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*"Kentucky School Survey, Waste Collection and Disposal Practices, 1969," Table 11, Main Report Appendix.

A number of schools indicated that waste is disposed of by incineration. Among the 675 schools reporting the use of incinerators, many may have considered that this reduction process was their disposal method. Moreover, the number of schools with incinerators, as defined by the Kentucky Air Pollution Control Commission is unknown. In many cases metal or cinder block burners are used, and some of these probably exceed the two-bushel or 4-cubic-foot burner that does not require a permit from the Commission. While there is substantial food waste resulting from luncheon or cafeteria operations, which should not be reduced in an open burner, the method of removing and disposing of this waste is still largely unknown. In the more rural school districts, an unresolved question remains as to whether such food waste finds its way into unregulated swine-feeding operations.

The local sanitarians were also asked to determine whether school waste is being disposed of by open dump or some form of landfill. The Survey results indicated that 653 schools used an open dump, while 720 schools referred to their disposal site as a landfill. The character of these landfills was not determined.

Hospital Collection and Disposal Practices

In conjunction with the School Survey, the local sanitarians were requested to identify collection and disposal practices used by hospitals in their districts. Of the 136 hospitals inventoried, 83 percent indicated that their solid waste was collected by either public or private collectors.* Among those with collection services, 55 percent were served by public collectors, while 24 hospitals disposed of waste on the premises. It is not known what form of disposal was used at these sites, but 47 hospitals noted an open dump as their means of disposal, while 54 indicated the use of landfills. Again, the character of the landfills was not determined.

STATE GOVERNMENT PRACTICES

Within Kentucky three State agencies provide most of the solid waste disposal services:

- The Department of Finance provides services to the majority of State agencies
- The Department of Parks maintains the Commonwealth's park system
- The Department of Highways maintains the more than 25,000 miles of State highways

While collection and disposal practices vary widely throughout Kentucky, the efforts of the Solid Waste Program to assure that solid waste is disposed of in a manner that is safe will become more effective as the various State agencies comply with the regulations established for the citizens of Kentucky. As State agencies adhere to State regulations, the legal capability of environmental health regulatory agencies will become strengthened, and the various courts will have positive examples of the reasonableness of the compliance requirements.

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*"Kentucky Hospital Survey, Waste Collection and Disposal Practices, 1969," Table 12, Main Report Appendix.

SOLID WASTE DISPOSAL PRACTICES

The National Survey was able to identify 224 community disposal sites in Kentucky. It recognized 21 of these as sanitary landfills. In 1967, the concept of what constituted a sanitary landfill was still largely unknown in Kentucky. Only since the passage of the Kentucky Solid Waste Act by the 1968 General Assembly, and the widespread distribution of the new State laws and regulations, have local governments become aware that the term means something other than a less obnoxious name for an open dump.

Even now, numerous well-educated people across the Commonwealth are opposed to the use of sanitary landfills as a means for the ultimate disposal of waste. Those who listen to these individuals have become fearful that sanitary landfills will destroy their water supplies or ruin valuable farm land. Yet, open dumps of all types are scattered across the Commonwealth. The attitude is still widely held, even by concerned individuals, that it is far better to carry the waste out into the country and dump it where it will not harm the community. A major effort is going to be required in Kentucky to demonstrate that sanitary landfills can be constructed and operated in a manner that will be safe for nearby residents, will not seriously contaminate surface or groundwater supplies and can add value to the land upon which they are built. Sanitary landfills are the safest and most efficient means of solid waste disposal presently available. Those who condemn the sanitary landfill do not seem to be concerned, or do not realize, that open dumps, oxidized materials in residue piles, and sludge from waste disposal plants are presently releasing untold quantities of pathogenic and toxic materials into Kentucky's natural environment, primarily through the leaching affect of water percolating through the waste piles. The sanitary landfill controls the leaching action of water through its compacted cover after each day's operation and a more substantial final earth cover.

A summary of the 1967 National Survey showed the typical disposal site in Kentucky to be a hillside dump.* Over 90 percent of the sites surveyed had uncontrolled blowing paper, and over 75 percent were routinely burned. More importantly, almost 20 percent of the disposal sites found in the Commonwealth interferred with the groundwater table. While not included in the National Survey, numerous dumps in Kentucky have been located along streams and are prime sources of water pollution.

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*"Solid Waste Disposal Sites General Character, Appearance, and Operational Problems, Commonwealth of Kentucky," Table 13, Main Report Appendix.

In an effort to expand upon the findings of the National Survey, the Solid Waste Program requested the Maintenance Division of the Kentucky Highway Department to conduct an inventory of promiscuous dumps along Commonwealth highways.* In 83 out of the 120 counties of Kentucky, the Highway Department found 776 illegal roadside dumps. All Highway Districts responded to the Survey, however, in some counties no illegal dumps were reported. Therefore, it must be assumed that a complete inventory would reveal additional illegal dumps. The presence of so many dumps along Kentucky highway rights-of-way illustrates a common solid waste disposal practice in the Commonwealth.

As a part of its planning efforts, the Solid Waste Program routinely locates and records ultimate disposal sites as they are reported or are located during normal field activities.† Some of the larger roadside dumps, which also appear on the Highway Department inventory, have been included and catalogued. It should be noted that not all of the 51 ultimate disposal sites permitted by the Solid Waste Program are sanitary landfills. Some are special-purpose sites for non-putrescible or other materials which can be left exposed for longer periods of time than are permitted at sanitary landfills.

A primary effort of the Solid Waste Program during the plan period will have to be devoted to:

- Identification of all forms of ultimate disposal sites throughout the Commonwealth
- Evaluation of these sites
- Closing of sites harmful to the public and the natural environment
- Assisting site operators in making their facilities safe
- Issuing permits for public or private disposal sites of all types

TRENDS IN SOLID WASTE MANAGEMENT

Since 1968, a number of efforts have been under way in Kentucky to develop means for improving solid waste management practices throughout the Commonwealth. The Appalachian Regional Commission (*ARC*) has sponsored two projects aimed at improving living conditions in eastern Kentucky. *KPDO* has sponsored research oriented toward improving the development opportunities across the Commonwealth. Federal agencies have been providing similar types of assistance oriented toward improving existing solid waste management practices. Finally, a statewide Environment Resources Council is in the planning stage. The establishment of this Council will greatly assist the coordination of activities among the various public and private groups concerned with Kentucky's environment.

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*"Summary of Illegal Dumps on Kentucky Highway Rights-of-Way, 1969," Table 14, Main Report Appendix.

†"Disposal Site Inventory, Commonwealth of Kentucky, 1970," Table 15, Main Report Appendix.

DEVELOPMENT PROGRAMS FOR EASTERN KENTUCKY DISTRICTS

In 1968, *KPDO*, with financial assistance from the U. S. Department of Housing and Urban Development (*HUD*) and the *ARC*, prepared a series of Development Programs for the *ADD's* in eastern Kentucky. As part of the Urban Services Program, preliminary solid waste disposal requirements for each of these Districts were identified.

AN URBAN DEVELOPMENT PROGRAM FOR THE BIG SANDY AREA

As an outcome of the original Development Programs, the evaluation of urban services requirements in the Big Sandy Area Development District was undertaken by *KPDO*, with financial assistance from *ARC*. This study, completed in early 1969, included an elementary model of a regional solid waste management system oriented toward a combined urban collection system and a rural container collection system. From these efforts, *KPDO* is undertaking a more detailed feasibility study to establish the requirements for a complete operational solid waste management system for the entire five-county area. Based largely upon these efforts, *KPDO* has in preparation solid waste management system requirement guidelines which will be used to estimate the needs and costs of providing adequate services in all 15 *ADD's* in the Commonwealth.

APPALACHIAN ENVIRONMENTAL HEALTH DEMONSTRATION PROJECT

In September 1968, the Division of Environmental Health, Kentucky State Department of Health, established the Southeastern Kentucky Environmental Health Demonstration Project in an 11-county region to develop and establish a comprehensive environmental health program. Included in this project was a feasibility study for a solid waste collection and disposal system.

BLUEGRASS SOLID WASTE MANAGEMENT SYSTEM

In February 1970, the Bureau of Solid Waste Management of the U. S. Department of Health, Education, and Welfare (*HEW*) provided a grant to Spindletop Research, Inc., for the demonstration of a Public-Private Regional Solid Waste Management System in Kentucky's Bluegrass Area Development District. *KPDO* provided the initial assistance to Spindletop and public officials within the District to prepare the application for the grant. The objectives of this demonstration project are to:

- Dispose of solid waste more efficiently than individual jurisdictions, an organization of public bodies alone, or a private agency alone

- Bridge the gulfs of inter-jurisdictional differences, including those between rural areas and towns, to attain economies of scale

- Attain area coverage with a solid waste disposal system operation that will improve environmental health conditions in the area

- Act as a supplemental educational and training mechanism on a regional level to expand environmental health concepts and solid waste collection and disposal processes and techniques

- Use solid waste disposal as a mechanism to improve land-use capabilities and enhance land values

COMPREHENSIVE HEALTH PLANNING COUNCILS

Since 1969, Comprehensive Health Planning Councils have been formed in each of the 15 Area Development Districts. These are volunteer groups of professional and lay people supported by a small professional staff whose functions are to review and recommend programs for improved health-related services within their Districts. As these organizations develop, they will become the focal points within each District for evolving improved solid waste management practices.

IV. RESPONSIBILITIES FOR SOLID WASTE MANAGEMENT IN KENTUCKY

INTRODUCTION

Agencies responsibile for the regulation of solid waste collection and disposal practices in Kentucky generally function independently of each other. From time to time over the years, numerous problems related to solid waste collection and disposal have been identified. As each problem became apparent, it was taken before the Kentucky General Assembly where regulatory statutes were enacted with the regulation authority being placed in what appeared to be the most appropriate Department of State government. This has resulted in a welter of legislative statutues* with specific regulatory responsibilities meted out to a number of Departments of State government and numerous agencies within these Departments.

Kentucky's efforts to comply with the Federal Solid Waste Act, Public Law 89-272 [*Title 42 U.S. Code* § §*3251-3259*], were initiated in June 1966, by an executive order from the Governor. The Program, then termed a Project, was placed within the Division of Environmental Health, Kentucky State Department of Health, and a director was appointed. In August 1967, a second person was added to the staff and in October 1968, a third. By the end of 1968, the director had resigned, and another staff position was filled. In February 1969, the present director was appointed. Since that time the Program has operated with a four-man staff.

In February 1968, the Kentucky General Assembly passed the Kentucky Solid Waste Disposal Act as found in the *Kentucky Revised Statutes (K.R.S.) 211.700 to 211.730 and 211.992.* Under the law, the Solid Waste Program is charged with securing, for the Commonwealth, the benefits of the Federal Solid Waste Disposal Act as it exists or is amended. This includes the administration of loans and grants from the federal government and other sources for carrying out the Comprehensive Solid Waste Program in Kentucky. It also requires that the Solid Waste Program function as the Commonwealth's administrative agent for statewide, regional, or local planning; demonstration projects; and research and construction loans and grants provided by all agencies of the federal government for solid waste related projects.

Since enactment of the Solid Waste Disposal Act, the Kentucky State Board of Health has adopted the following specific administrative regulations:

- SW 1 - Solid Waste Site and Facility Permits

- SW 2 - Sanitary Landfills

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*Codification of Solid Waste Management Authority in Kentucky, Appendix A.

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- SW 3 - Incineration
- SW 4 - Other Disposal Methods

These regulations and others, which relate to solid waste have been adopted by the Kentucky State Board of Health, are presented in Appendix A.

The Federal Bureau of Solid Waste Management (*HEW*) financially assisted the establishment of the Kentucky Solid Waste Program during its first three years of operation. Under federal directives, the three-year period was to be devoted to the development of a Comprehensive Solid Waste Management Program within the State. Efforts were directed toward the development of a management plan for the continued operation of the comprehensive program. These efforts required evaluating the responsibilities and activities of the State agencies concerned with various aspects of regulating solid waste practices across the Commonwealth.

As a result of the Solid Waste Program's planning efforts, several departments as well as agencies of these Departments have been identified and are listed below. Their functional relationship to solid waste management is outlined later in this Section.

- Kentucky State Department of Health
  - Office of the Commissioner
    - Air Pollution Control Commission
    - Water Pollution Control Commission
    - Comprehensive Health Planning Commission
    - Legal Services
    - Local Health Services
  - Division of Administrative Services
    - State/Local Budgets and Fiscal Administration Program
    - Central Administration Accounting Program
    - Special Projects Administration Program
    - Personnel Program

        - Training and Recruitment Program
        - Local Administration Program
    - Division of Environmental Health
        - Air Pollution Control Program
        - Environmental Health Services Program
        - Occupational Health Program
        - Plumbing Program
        - Radiological Health Program
        - Sanitary Engineering Program
        - Water Pollution Control Program
    - Division of Laboratories
        - Chemistry Section
    - Division of Medical Care
        - Health Facilities Program
        - Medical Care Standards Program
    - Division of Research, Planning and Statistics
        - Research Planning Program
        - Data Processing Program
- Kentucky Department of Agriculture
    - Division of Livestock Sanitation
    - Division of Meat Inspection
    - Division of Pest and Noxious Weed Control

- Kentucky Department of Fish and Wildlife Resources
  - Division of Fisheries
- Kentucky Department of Highways
  - Division of Maintenance
- Kentucky Department of Mines and Minerals
  - Office of the Commissioner
- Kentucky Department of Motor Transportation
  - Division of Qualifications
  - Division of Law Enforcement
- Kentucky Department of Natural Resources
  - Division of Clean-up and Beautification
  - Division of Forestry
  - Division of Strip Mining and Reclamation
  - Division of Water
- Kentucky Department of Public Safety
  - Division of State Police
- U. S. Department of Agriculture
  - Forest Service
- Kentucky Program Development Office
  - Regional Planning Agencies
- Local Governments

- Counties

- Cities

KENTUCKY STATE DEPARTMENT OF HEALTH

The Kentucky State Department of Health, through the Commissioner of Health and the operating units under his direction has been assigned the responsibilities and functions set forth in *K.R.S. 211.005: "...to adequately safeguard the health of all its citizens."*

To accomplish this legislative directive, the State Department of Health, an arm of the Executive Branch of State government, is organized into the Office of the Commissioner, several divisions, programs, and projects.

The Department is empowered through a variety of General Assembly Acts to undertake responsibilities related to the regulation of solid waste collection and disposal practices. These include: *K.R.S. 77.005-77.990; 109.080-109.090; 152.120; 152.125; 211.210; 211.700-211.730; 211.992; 216.470; 217.280-217.300; 219.010-219.070; 224.010-224.210.*

OFFICE OF THE COMMISSIONER

The Commissioner of the Kentucky State Department of Health serves as Secretary of the State Board of Health which was created by the Kentucky General Assembly. This Board has the authority to:

- Promulgate administrative regulations

- Regulate and control all public health matters

- Develop policies for the establishment of expanded public health programs

The Commissioner also serves as Executive Director of the Kentucky Air Pollution Control Commission and Executive Secretary of the Kentucky Water Pollution Control Commission. In addition, he serves as a member of the Comprehensive Health Planning Council and, as the Vice Chairman, provides administrative direction to the Comprehensive Health Planning Commission.

In addition to their normal service functions, the Air Pollution Control Commission, the Water Pollution Control Commission, and the Comprehensive Health Planning Commission—*all of which directly affect the activities of the Solid Waste Program*—are administratively attached to the Office of the Commissioner. The Air Pollution

Control Commission and the Water Pollution Control Commission function through the Division of Environmental Health and are described as part of that Division's activities. The Comprehensive Health Planning Commission is the functional arm of the Comprehensive Health Planning Council which was created by executive order of the Governor and includes all State agencies with health interests, voluntary health organizations, professional health organizations, professional medical organizations, and educational institutions.

In the 15 *ADD's*, Area Comprehensive Health Planning Councils have been formed to identify health planning needs within each District and to review and recommend programs for improved health related services. The review function specifically applies to all federally supported plans or programs undertaken within the Districts. In addition, the Councils can determine local needs and select priorities for federally supported plan, program, or facilities development. All regional solid waste program development activities will be undertaken with the guidance and assistance of the Area Comprehensive Health Planning Councils.

To augment area planning efforts for regional solid waste management systems, the Solid Waste Program and *KPDO* are preparing Operational Solid Waste Management System Development Guidelines. These guidelines are being developed in Sections and will be distributed as they become available. They will contain recommended procedures for developing and operating solid waste collection and disposal systems and will provide useful information for community systems or for large regional systems.

In order to coordinate the activities of the Solid Waste Program at the State and local health department levels, it is necessary for the Solid Waste Program to utilize those services provided by the Office of the Commissioner through the Offices of Legal Services and Local Health Services.

Office of Legal Services

The Office of Legal Services assists the Solid Waste Program by:

- Researching and consulting on legislation to be submitted to the Kentucky General Assembly
- Reviewing legislation and providing pertinent legal advice
- Preparing and drafting all rules and regulations relating to public health

Legal services does not handle criminal litigation; all criminal litigation for the Commonwealth is the responsibility of the Attorney General's Office. The Water Pollution Control Commission is the only agency within the State Department of Health authorized by statute to have an Assistant Attorney General.

Office of Local Health Services

The Office of Local Health Services, on behalf of the Commissioner of Health, provides leadership, support, and direction to each of the 120 local health departments in the Commonwealth. It is the responsibility of this office to disseminate all laws, regulations, guidelines, and standards developed by the Solid Waste Program to the local health departments. This office also assists the Solid Waste Program in planning, implementing, and evaluating all programs relating to solid waste to be offered through local health department employees to local citizens.

All regulations of the Solid Waste Program are enforced by the local health departments. Basic activities related to solid waste practices are carried out by sanitarians in the 120 counties and include:

- Advising and aiding communities in planning for proper collection and disposal of solid waste and control of rodents and insects
- Investigating public health nuisances and advising on their abatement
- Discussing sanitation problems with individuals and groups
- Inspecting regularly a variety of public facilities to assure that the State Health Department regulations are being followed

Local health departments are undergoing a gradual transition to regional departments. As this process takes place, the environmental health activities can become a separate program specifically oriented toward the eight program areas of the present Division of Environmental Health.

The Office of Health Education of Local Health Services assists the Solid Waste Program by:

- Providing technical library facilities
- Developing and preparing audio-visual training materials
- Distributing the Department's official publications, the quarterly *Bulletin* and the bimonthly *News & Plans*

These publications are sent to 20,000 people across the Commonwealth, including health professionals and community leaders, and can become a vital tool for disseminating solid waste information. At the present time, the Solid Waste Program is being assisted by the Office of Health Education in producing a documentary film on solid waste problems in Applachian Kentucky as an educational tool for distribution to the general public.

On the local level, the Office of Health Education works very closely with the local health educator who has the responsibility for developing training programs within counties and communities.

The Office of Records and Reports of Local Health Services has assisted the Solid Waste Program through its new computerized system for reporting local health department activities. This system, initiated in July 1968, reports individual activities performed by local health department employees on a weekly basis. Group activities are reported on a monthly basis.

Solid waste data in the annual print-out of this material for Fiscal Year 1969 reflected such entries as the number of:

- Investigations
- Plans processed
- Surveys made
- Field visits
- Talks or classes
- Persons in attendance

These data revealed that the 290 local health department sanitarians spent a total of 11,304 man-hours on activities related to solid waste management, or 2.7 percent total client time not including office visits or phone calls relating to solid waste matters.

These data would be of greater value to the Solid Waste Program if each monthly print-out could be traced to the reporting county for a specific check on the nature of the activities performed. The procedures utilized for these purposes will affect the manner in which the Solid Waste Program's permit records system will be developed.

DIVISION OF ADMINISTRATIVE SERVICES

The Division of Administrative Services develops and coordinates the administrative practices, procedures, and control methods for the entire Department of Health. It also supervises and coordinates all services available to other divisions and their programs, within both the State and local health departments, to assist them with their budgets, training and recruitment of personnel, and purchasing procedures.

To coordinate the activities of the Solid Waste Program at the State and local health department levels, it is necessary for the Solid Waste Program to utilize those services provided by the Division of Administrative Services through the offices of:

- State/Local Budgets and Fiscal Administration Program
- Central Administration Accounting Program
- Special Projects Administration Program
- Personnel Program
- Training and Recruitment Program
- Local Administration Program

The functions specified for each of the above-mentioned programs are those which significantly affect the Solid Waste Program's activities.

State/Local Budgets and Fiscal Administration Program

State/Local Budgets is responsible for the management, disbursement, and accounting of federal and State monies for the various programs within the State Department of Health.

Central Administration Accounting Program

Central Accounting is responsible for maintaining all fiscal records of purchases, sales, fees, disbursements, and income connected with the central operation of the State Department of Health.

Special Projects Administration Program

Special Projects reviews all project applications; establishes cooperative budgets; verifies personnel requests; verifies and approves out-of-state travel; reviews and approves contracts for consulting and professional services; approves and records all requests for purchases, operating expenses, supplies, and capital outlay expenditures for each project.

Personnel Program

Personnel maintains records for all State and local health department employees. It acts as the liaison between the State Department of Personnel, federal and other State agencies, employees, the public, and prospective staff members in regard to specifications, positions, and staffing.

Training and Recruitment Program

Training and Recruitment coordinates and directs the training and recruiting programs for all State and local health department employees.

Local Administration Program

Local Administration provides the overall supervision and coordination of the 120 local health departments in the State, including staff services and information to the Director, Office of Local Health, for planning and developing programs.

It is a further responsibility of this office to coordinate the flow of information between the local health units and the State Department of Health. The activities of this office govern the performance capabilities of the Solid Waste Program at the local level as far as utilization of local health department employees is concerned.

DIVISION OF ENVIRONMENTAL HEALTH

The Division of Environmental Health coordinates the work of the eight environmental health programs and plans for the development and modification of these programs which include:

- Air Pollution Control
- Environmental Health Services
- Occupational Health
- Plumbing
- Radiological Health
- Sanitary Engineering
- Solid Waste
- Water Pollution Control

The Director of the Division of Environmental Health, who is the Chief Engineer of the State Department of Health, also serves as Executive Secretary and Executive Officer of the Air Pollution Control Commission and as Executive Director of the Water Pollution Control Commission.

The policies and administrative regulations of the eight environmental health programs are established by the State Board of Health and administered by the State Department of Health. In practice, however, the Air Pollution Control and Water Pollution Control Programs' policies and administrative regulations are established by the respective Commissions and passed to the State Board of Health for execution by the Air Pollution Control and Water Pollution Control Programs.

Air Pollution Control Program

The Air Pollution Control Commission was established in 1966 under *K.R.S. 224.310 to 224.460* as a separate body within the State Department of Health. Members of the Commission are:

- The Commissioner of Health
- The Attorney General
- The Commissioner of Commerce
- The Commissioner of Natural Resources
- The Commissioner of Agriculture
- A representative of the general public
- Three representatives of industry
- A representative of an Air Pollution Control District
- A representative of the University of Kentucky College of Engineering

The Commission has the responsibility for establishing its own policies, procedures, and activities. Through the Commission's Executive Officer, its administrative and technical functions are performed by the Division's Air Pollution Control Program.

Pertinent powers of the Air Pollution Control Commission include:

- Issuing, amending, and repealing rules and regulations consistent with the powers established in *K.R.S. 224.310-224.460.*

- Preparing and developing a comprehensive plan, or plans, for the prevention, abatement, and control of air pollution in Kentucky

- Collecting and disseminating information and conducting educational and training programs relating to air pollution

- Advising, consulting, and cooperating with other agencies

- Establishing, modifying, or amending after public hearing, ambient air standards and emission standards of various air pollutants

Specifically, the Commission, by regulation, may prohibit the installation, alteration, or use of any machine, equipment, device, or other article which it finds may cause or contribute to air pollution. The Commission's intention is to prevent or control the emission of air contaminants.

A close relationship exists between the activities of the Air Pollution Control Program and the Solid Waste Program. While the Air Pollution Control Program is concerned with the design of equipment, etc., which can cause air pollution, the Solid Waste Program is concerned with safe disposal of residues resulting from the combustion process. Similarly, when water is used in the process, the Water Pollution Control Program is concerned with the safe disposal of resulting liquids.

Environmental Health Services Program

The Environmental Health Services Program is responsible for assuring that a minimum standard of sanitation is maintained in food preparation and serving and at all types of facilities open to the public. The three major operational sections within this program are:

- General Sanitation

- Milk Control

- Food Control

The regulations enforced through this program include the generation sources and initial storage practices of food processing industries and public facilities which prepare and serve food. All types of housing facilities open to the public and all public recreation areas are also inspected by this program. Finally, the Environmental Health Services Program is responsible for enforcing the Kentucky Statutes relating to septic tank cleaning and sludge disposal practices.

Through its permits issuance practices, this program has very complete files on the public and private economic enterprises related to food processing, as well as those related to preparing and serving food. While its records include only information on storage practices for waste at these enterprises, this information will be valuable for identifying these sources. From this information, the Solid Waste Program will be able to trace the transportation practices currently in use. Then, in coordination with state agencies with the appropriate regulatory powers, the necessary regulations and enforcement practices can be developed to assure that the transportation and final disposition of solid waste materials from these business enterprises do not harm the public or the natural environment.

Occupational Health Program

The Occupational Health Program has two major purposes under the authority stated in *K.R.S. 211.080, K.R.S. 211.180, and K.R.S. 211.990.* These include the prevention of the occurrence or recurrence of occupational diseases, illnesses, and impairments of a non-traumatic nature among all employed workers in the Commonwealth in all types and places of employment; and, the promotion of health programs and practices within industry to maintain a higher standard of personal health among employed persons.

A primary function of this program is to determine health hazards to workers including the following: inadequate ventilation, high noise levels, exposure to excessive heat, vibration, pool illumination, and exposure to toxic chemicals. Activities in this connection include: environmental evaluation, establishment of better industrial regulations, development of additional informational aids, continued investigation of occupational diseases, and increased promotion of in-plant health services.

The program routinely evaluates the chemical characteristics of materials used by industries to determine their occupational hazard potential. Information on toxicological characteristics of materials used by industries, when properly processed, can reduce Solid Waste Program efforts needed to identify generation sources and types of hazardous waste produced by Kentucky industries. Much of the information on the hazardous characteristics of the various types of industrial materials could be useful in the development of safety codes for the disposal of such waste materials.

Plumbing Program

The Plumbing Program, which began in 1930, has the responsibility for the proper installation of sewers and sewage disposal systems. This program inspects and certifies all new or renovated plumbing systems in counties having a city of the first, second, third, or fourth class; in all public buildings throughout the Commonwealth; in all cities where the County Board of Health has adopted the State Plumbing Code as a regulation for their county; and in all cities where the city has adopted the State Plumbing Code as an ordinance for the city. The program functions through the study, review, approval, or disapproval of plans for plumbing installation and evaluation and advice on plumbing installation problems involving State departmental agencies, local health departments, architects, engineers, and the general public. These codes are fully applicable to sanitary facilities required at sanitary landfill sites.

Radiological Health Program

The Radiological Health Program, through the authority of *K.R.S. 152.120-152.125*, has the responsibility for assuring that ionizing radiation exposure of the population is kept to the lowest practical level. The program's activities are directly concerned with:

- Radioactive materials
- Radiation producing machines
- Environmental contaminants
- Consumer products
- Electronic products

This program has been given the responsibility for regulating the disposal of radioactive materials in Kentucky. Continued coordination of the Solid Waste Program with respect to this function is needed. The environmental contaminant studies and evaluations conducted by this program, properly coordinated with the research efforts of other programs within the Division of Environmental Health, provide valuable data and information for use in the Solid Waste Program's efforts.

Sanitary Engineering Program

The Sanitary Engineering Program through the authority of *K.R.S. 211.180* has the major responsibility for the bacteriological safety and chemical quality of public water supplies in the Commonwealth. It is responsible for the proper design, operation, maintenance, and promotion of all municipal water supplies, including water districts, fluoridation installations, interstate carrier watering points, and public swimming pools. Program activities include:

- Review of public water supply and swimming pool plans and specifications
- Approval, or disapproval, of public water supply and swimming pool plans and specifications
- Inspection of the above facilities

- Interpretation of bacteriological and chemical results of water samples from public water supplies
- Evaluation of water plant operational reports
- Training of water plant operators for certification

In Fiscal Year 1970, about 2 million of the Commonwealth's 3.2 million citizens were being served by 423 water supply systems. This program has the responsibility for reviewing solid waste disposal site plans to assure that contaminants from such sites will not affect public water supply intakes.

Solid Waste Program

During the Solid Waste Program's planning phase, primary attention has been given to the identification of the manner in which the several State agencies, both within and without the Department of Health, will influence the Comprehensive Solid Waste Program. A brief outline of the results of these investigations appears in Section V of this report entitled *Problems and Needs*.

A policy established during the planning phase was that of performing functional activities only in response to complaints received from citizens of Kentucky. While these activities have resulted in a substantial number of citations, no actions have yet resulted in formal hearings related to solid waste regulation violations. Upon notification of violation, the majority of disposal site operators, public and private, required only informal hearings to bring their operations into compliance, or to discontinue questioned operations. Section V of this report, *Problems and Needs*, will outline essential requisites for a Comprehensive Solid Waste Management Program in Kentucky and the functions of the Solid Waste Program as the administrative instrument for such an effort. The actions to be taken by the Solid Waste Program will be outlined in Section VI entitled *The Kentucky Solid Waste Management Plan*.

Under its regulatory authority the Solid Waste Program is responsible for the safe disposition of solid waste and assuring that solid waste is disposed of only at sites for which permits have been issued. Normal enforcement would be accomplished through regional and local health officials and all other law enforcement officials of the Commonwealth including:

- U. S. Forest Rangers
- State Foresters
- Motor Transportation Law Enforcement Officers

- State Police

- Conservation Officers

- All local peace officers including sheriffs, magistrates, constables, county and local police within the areas of their jurisdictions

Local health departments have the authority to issue citations to known offenders. Law enforcement officers can apprehend for prosecution violators of state and local codes or ordinances within the areas or scope of their jurisdiction. The Solid Waste Program, when notified of unauthorized solid waste disposal practices, can issue a notice to public or private violators to appear for hearing on the violation. If warranted, litigation against violators would then be undertaken by the Attorney General of the Commonwealth.

Water Pollution Control Program

The Water Pollution Control Commission was established as a separate body within the State Department of Health by the Kentucky General Assemby in 1950 and functions in accordance with *K.R.S. 224.010-224.210*. The Commission is an 11-man body comprised of:

- The Commissioner of Health

- The Commissioner of Natural Resources

- The Commissioner of Fish and Wildlife Resources

- The Commissioner of Commerce

- The Attorney General

- The Chief of the Department of Mines and Minerals

- The Director of the Division of Strip Mining and Reclamation of the Department of Natural Resources

- One appointed representative of industry

- One appointed representative of municipalities

- One appointed representative of either industry or municipalities

The Commission has the responsibility for establishing its own policies, procedures, and activities. Through the Commission's Executive Director, who is also the Director of the Division of Environmental Health, the administrative and technical functions of the Commission are performed by the Division's Water Pollution Control Program.

Pertinent powers of the Commission as specified in *K.R.S. 224.040* include:

- To supervise the administration and enforcement of *K.R.S. 224.010-224.100*
- To develop a comprehensive program for the prevention, control, and abatement of water pollution throughout the Commonwealth
- To advise, consult, and cooperate in carrying out such a program
- To encourage and conduct studies, investigations, research, experiments, and demonstrations to collect and disseminate information relating to water pollution and its prevention, control, and abatement
- To establish, modify or amend, after public hearing, water quality standards for the waters of the Commonwealth
- To adopt rules and regulations and conduct hearings and litigate against violators
- To issue permits for water treatment and sewage treatment facilities
- To investigate and inspect for compliance
- To train sewage plant operators for certification

Included among these powers is the responsibility to regulate the disposition of other waste (*sawdust; bark, or other wood debris; garbage; refuse; ashes; offal; tar; oil; chemicals; acid drainage; and all other foreign substances not included within the above definitions of industrial waste and sewage which may cause or contribute to the pollution of any waters of the Commonwealth*), and the regulation of installations for disposal systems and treatment works.

The Water Pollution Control Commission is extremely important to the development of adequate safety measures related to the disposal of solid waste. Through its laboratory and research capabilities, the Commission can undertake the critical evaluations of leachate penetration from dumps of all types and sanitary landfills into surface and groundwater supplies. These research efforts will be more effective when they become more closely coordinated with the federally funded Kentucky Water Resources Institute now at the University of Kentucky.

Factual information on the character of leachate and its percolation into groundwater from open-air dumps is limited. Dumps located adjacent to streams, many of which recharge the groundwater supplies widely used in rural areas, contribute to the contamination or pollution of these streams. Communities throughout Kentucky use open dumps for refuse and incinerator or sewage treatment plant residues. Open dumps are also used by industries of all types and typically are the disposal sites for solid waste, as defined by the Kentucky Legislature, or fluid waste with high solids content such as the highly toxic process liquors from chemical plants.

The Solid Waste Program is responsible for identifying potentially hazardous solid waste disposal practices. The Water Pollution Control Commission has the immediate response capability of evaluating the water pollution effects of these practices, and the two agencies functioning together have sufficient enforcement capability to correct the hazardous practices. The Kentucky Water Resources Institute, through its training research capability, can undertake personnel development training and, at the same time, practical evaluations of long-term water contamination or pollution situations.

DIVISION OF LABORATORIES

Chemistry Section

The Chemistry Section has the technical capability to provide the Solid Waste Program with chemical analyses of problem waste and to recommend safe handling and disposal procedures.

DIVISION OF MEDICAL CARE

Medical Care Standards Program

Medical Care has the responsibility for regulating the 143 hospitals and 114 nursing homes licensed in Kentucky. Included in this function is the responsibility for the adequate disposition of waste from within these facilities. This program can provide needed information on the types of waste generated from these facilities, their volumes, the program's storage requirements, and evaluation procedures. The program also may be able to provide information on the transportation and final disposition of solid waste from licensed hospitals and nursing homes. Such information would permit the Solid Waste Program to determine the locations and methods of final disposition of solid waste from these facilities in order to assure that the public health and the natural environment are protected.

Health Facilities Program

Health Facilities is the agent of the State Board of Health and the Commissioner of Health in the administration of the Kentucky Licensure Law, *K.R.S. 216.400 to 216.500 and subsection (2) of K.R.S. 216.900.* This legislation and the associated regulations require that all inpatient care facilities meet prescribed minimum rules, regulations, and standards for construction, maintenance, and operation and that they be licensed by the State before they serve the public.

The Comprehensive Solid Waste Program's functions would be greatly assisted if this agency has or develops standards and operational regulations that would assure, for new facilities, safe on-site solid waste storage and disposal. The regulations also should require the safe transportation of solid waste and its ultimate disposal in a permitted disposal site, or by some other method, approved by other agencies of the Commonwealth of Kentucky responsible for those forms of ultimate disposal.

DIVISION OF RESEARCH, PLANNING AND STATISTICS

Research Planning Program

Research Planning provides assistance to the various Departmental programs in developing program planning based upon factual data, new knowledge, and new methods of application. It provides the means for intercommunication and cooperation with other agencies, organizations, and individuals providing health services. The program also stimulates program expansion, new programs, demonstration projects and studies, and gives assistance in grant project protocol. As a final function, the Research and Planning Program regularly reviews literature in the health field to find new ways and means to meet problems and carry out the objectives of Departmental programs.

Data Processing Program

Data Processing is a service program which provides assistance to other Divisions and Programs in their reporting, processing, and objective evaluations. Included in their activities are the production of various listings and statistics dealing with disease and environmental health hazards.

These two activities of the Division of Research Planning and Statistics can provide valuable assistance to the Solid Waste Program in the development of numerous routinized information-gathering programs that will be required during the five-year plan period.

KENTUCKY DEPARTMENT OF AGRICULTURE

The Kentucky Department of Agriculture has the statutory authority to enforce laws, develop policy, promulgate, and promote projects related to agriculture in the Commonwealth. The Kentucky Revised Statutes related to solid waste practices under the jurisdiction of the Department of Agriculture include: *K.R.S. 217.800 to 217.893, 249.400 to 249.430, 257.020 to 257.310, 261.200 to 261.320, and 263.010 to 263.160.* These responsibilities are carried out through the Divisions of Livestock Sanitation, Meat Inspection, and Pest and Noxious Weed Control.

DIVISION OF LIVESTOCK SANITATION

The Division of Livestock Sanitation has the responsibility for regulating the sanitation practices and the health of animals sold at markets. The Division also regulates the transportation and disposal of animal carcasses and the use of garbage as feed for swine. The information available through this Division on the locations of animal markets and the solid waste problems of areas where animals are concentrated will be valuable to the Solid Waste Program in identifying the problem characteristics and the disposition of these solid waste materials.

Information available from the Divisions of Livestock Sanitation and Meat Inspection would enable the Solid Waste Program to trace the movement and final disposition of the various forms of waste generated at animal markets and processing facilities. Development of such an information system would enable the Solid Waste Program to undertake needed regulatory measures within its power, and to transmit to the Air and Water Pollution Control Commissions, as well as other regulatory agencies, information that would enable them to take appropriate actions within their jurisdictions.

DIVISION OF MEAT INSPECTION

The Division of Meat Inspection inspects meat packing operations, including outer premises and storage areas for general sanitation purposes. Information developed by this Division is important to the Solid Waste Program for identifying the locations of meat processing facilities, storage practices used at these facilities, and the volumes of animal product waste generated at each facility. The transportation and final disposition of these materials must then be determined by the Solid Waste Program.

DIVISION OF PEST AND NOXIOUS WEED CONTROL

As the mosquito and rodent control agency for the Commonwealth, prior to the closing of disposal sites, the Division of Pest and Noxious Weed Control, upon request, undertakes the required rodent extermination program.

KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

The Kentucky Department of Fish and Wildlife Resources was established by the Kentucky General Assembly in 1952 as noted in *K.R.S. 150.021*. This Department is responsible for the protection, conservation, and restoration of wildlife resources throughout the Commonwealth. The major programs within the Department include:

- Wildlife research
- Restocking wildlife
- Law enforcement relating to wildlife
- Acquisition of wildlife habitats
- Conservation education

DIVISION OF FISHERIES

The Division of Fisheries is concerned with the location of solid waste disposal sites where materials or leachate from these sites may pollute surface or groundwaters and thereby injure wildlife. In addition, the Division is concerned with the possibility of open dumps acting as focal points where diseases can be transmitted between animals and between animal and man.

The enforcement responsibilities of the Department are carried out by conservation officers who may directly apprehend litterers and violators of fish and game regulations. These officers routinely notify the Solid Waste Program of problems relating to ultimate disposal practices within their jurisdictions.

KENTUCKY DEPARTMENT OF HIGHWAYS

The Kentucky Department of Highways has the massive responsibility of removing litter from more than 25,000 miles of state-maintained roadways. This task costs Kentucky taxpayers millions of dollars each year.

DIVISION OF MAINTENANCE

The Division of Maintenance is responsible for the collection of litter from the roadways and has already provided the Solid Waste Program with valuable assistance by identifying almost 800 roadside dumps throughout the Commonwealth. A summary of illegal dumps on Kentucky highway rights-of-way is presented by *ADD* in the Main Report Appendix. Under the authority of *K.R.S. 433.750*, the several district highway engineers can give permission for the use of disposal sites lying wholly within the State highway rights-of-way.

The Kentucky Department of Highways also has the regulatory responsibility to inspect and permit all junkyards which lie within 2,000 feet of State highway rights-of-way.

KENTUCKY DEPARTMENT OF MINES AND MINERALS

The Kentucky Department of Mines and Minerals created according to the provisions of *K.R.S. 351.010-351.990* is responsible for:

- Regulating mining practices
- Preventing industrial injuries and fatalities in the mines
- Regulating oil and gas drilling practices directed toward conserving mineral deposits
- Protecting correlative rights of mineral owners
- Protecting underground mines from wells which penetrate them

Regulation of strip mining is the province of both this Department and the Division of Strip Mining and Reclamation of the Department of Natural Resources. The Commissioner of the Department of Mines and Minerals is a member of the Strip Mining and Reclamation Commission pursuant to the authority set forth in *K.R.S. 352.010 to 352.990.*

The Department is closely affiliated with the Water Pollution Control Commission, of which the Commissioner of the Department is a member. The Department is required to make recommendations to the Water Pollution Control Commission concerning disposal of salt water and oil field waste.

Information on the location of mining operations and orphaned mining areas from this Department will be needed by the Solid Waste Program during its efforts to determine the magnitude of waste problems across the Commonwealth. The Department of Mines and Minerals will also be able to provide important data on the toxicological characteristics of many types of waste.

KENTUCKY DEPARTMENT OF MOTOR TRANSPORTATION

The Kentucky Department of Motor Transportation was created in 1950 as a Statutory Agency with five Divisions:

- Division of Qualifications
- Division of Law Enforcement
- Division of Hearings

- Division of Rates and Services
- Division of Administrative Services

K.R.S. 281.595 to 281.806 provide the Department with the authority to regulate the operation of all motor vehicles used for hire to transport persons or property upon the highways of the Commonwealth.

DIVISION OF QUALIFICATIONS

The Division of Qualifications supervises the sale of commercial license plates for trucks and is the major tax-collecting agent for certificates, permits, and operational fees. Through the records of this Division, the Solid Waste Program will be able to identify truck fleets engaged in the transportation of solid waste.

DIVISION OF LAW ENFORCEMENT

This Division enforces all motor transportation laws. The Division's field personnel carry all the powers of peace officers with respect to violations relating to the operation of motor vehicles.

KENTUCKY DEPARTMENT OF NATURAL RESOURCES

The Kentucky Department of Natural Resources was created according to *K.R.S. 146.010*. The Department has the authority to exercise all administrative functions of the Commonwealth relating to:

- Conservation and protection of natural resources, except wildlife
- Flood control for all purposes
- Water usage for municipal and industrial purposes
- Strip mining and reclamation

The functions and duties of the Department are executed by the five Divisions and their advisory bodies and include:

- Division of Clean-up and Beautification
- Division of Forestry
- Division of Water

- Division of Soil and Water Conservation

- Division of Strip Mining and Reclamation

Only the Division of Soil and Water Conservation is not directly concerned with some aspect of regulating or controlling the disposal of solid waste.

DIVISION OF CLEAN-UP AND BEAUTIFICATION

The primary function of this Division, created by executive order in 1960, is to develop solutions to problems of junk, litter, and run-down properties that blight the Kentucky landscape. Its primary activities are educational through the development of information, guidance, and training sessions for local groups. Heavy emphasis is placed upon statewide campaigns and other promotional efforts to beautify Kentucky.

Through close coordination with the Solid-Waste Program, both agencies can develop a more complete public education effort than either can accomplish alone. This Division has developed and emphasized educational and promotional efforts among local groups. The Solid Waste Program is developing the technical capabilities required to understand the operational requirements for providing safe means for disposing of society's discards.

DIVISION OF FORESTRY

The Division of Forestry is charged by statute *K.R.S. 149.010* with the responsibility for protecting, developing, and perpetuating all forest lands in the Commonwealth. In Kentucky, forests cover 11.9 million acres, or 36 percent of the State's total land area. This Division performs such functions as setting standards relating to the operation of ultimate solid waste disposal sites within or adjacent to forests. It also administers forestry regulations relating to solid waste and routinely inspects disposal sites to enforce forestry regulations. The Division of Forestry's standards are being incorporated in the procedures for evaluating permit requests for ultimate disposal sites.

DIVISION OF STRIP MINING AND RECLAMATION

This Division is responsible for controlling the recovery of all hard minerals other than coal and clay by surface mining methods. Within Kentucky, there are 111 mining companies working 183 operational sites on 11,980 acres of land. The Division's intent is to reduce the damaging influences of surface mining activities to the natural environment through sound scientific principles.

The Division is the operational section of the Reclamation Commission comprised of:

- The Commissioner of Natural Resources
- The Commissioner of Mines and Minerals
- The Director of the Division of Strip Mining and Reclamation

The Commission has the power to draft regulations intended to minimize and prevent the injurious effects of unregulated strip mining on the people and resources of Kentucky.

The Solid Waste Program is charged with the control of discarded materials resulting from mining operations. The Program's efforts to survey these waste throughout the Commonwealth in order to identify potential hazards resulting from their location or chemical characteristics will require substantial assistance from the Reclamation Commission and the Division of Strip Mining and Reclamation.

DIVISION OF WATER

The Division of Water has jurisdiction over the development of all streams and floodways within the Commonwealth. It is the official State agency for a wide range of water-related activities including all flood control and water resources projects which involve State or federal funds.

The principal activities and responsibilities of the Division include:

- Regulating all construction in the floodplains of streams
- Regulating water withdrawals from all surface and groundwater sources
- Planning and construction of small impoundments and other works for water supply, flood control, and recreation
- Planning for statewide and local water resources development
- Providing information to the public

Included in the activities of the Division is the development of a computerized Water Management Information System which will include data for Kentucky on:

- Population
- Employment by 19 industrial categories
- Water demand

- Water availability
- Water quality
- Recreation
- Flood control

Information from this system can be obtained by urban place, county, watersheds, subbasins, and Area Development Districts. Information is also recorded by latitude and longitude to the minute or to within approximately one mile of its physical location. Once data are referenced by coordinates, they can be related and accumulated by any of the geographic areas included in the system.

The variety and volume of information required by the Solid Waste Program can be systematically developed according to the structure of the Water Management Information System. The long-term requirements of the Solid Waste Program can only be met through the use of a rationally organized data processing system that permits rapid evaluation and retrieval of information from any place within the Commonwealth.

KENTUCKY DEPARTMENT OF PUBLIC SAFETY

DIVISION OF STATE POLICE

The Kentucky Department of Public Safety, through its Division of State Police, is charged with the enforcement of litter laws along Kentucky highway rights-of-way, in streams, along stream banks, or on the ice over any body of water. These powers are defined in *K.R.S. 189.150, 189.751, 433.750, 433.753, 438.060*. Under *K.R.S. 16.130*, the Department also cooperates with all State agencies to enforce the laws of the Commonwealth.

U. S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

The U. S. Forest Service regulates the development and use of all ultimate solid waste disposal sites within the national forests. The Forest Service will permit the use of national forest lands for disposal sites in those areas where such lands encompass most of the local political jurisdiction. The Forest Service has its own permit requirements for public or private bodies that wish to develop ultimate solid waste disposal sites on U. S. forest lands.

The Solid Waste Program utilizes information available from the Forest Service to maintain an accounting of the several ultimate disposal sites presently located within the substantial national forest lands in Kentucky. Through greater coordination, the two agencies can more adequately provide their respective services to the general public.

KENTUCKY PROGRAM DEVELOPMENT OFFICE

The Kentucky Program Development Office (*KPDO*) was established by executive order of the Governor in June of 1968 to concentrate in a single unit a strong areawide organization which could perform and assist local area planning. In 1970, the Kentucky General Assembly formalized *KPDO* through *House Bill 176* under *K.R.S. Chapter 147-A* as an *Office* to act for the Governor on programs relating to State development.

The Director of *KPDO*, as a special assistant to the Governor, acts as the Secretary of the State Planning Committee, coordinates, and provides liaison with State and federal agencies with respect to specific federal-state programs. Among its powers, the legislation permits *KPDO* to:

- Designate development areas and organizations
- Approve Area Development programs
- Provide the State's approval to proposals for federal agencies when State approval is required by federal laws, unless otherwise provided by K.R.S.
- Provide that final determination and certification of such proposals shall be at the discretion of the unit submitting the proposal
- Aid local units of government by disseminating technical information
- Provide liaison between local governments, Area Development Councils and Districts, and the State government
- Conduct and supervise projects assigned by the Governor

This agency has coordinated the efforts to establish 15 Area Development Districts (*ADD's*) in the 120 counties within the Commonwealth. The Solid Waste Program is cooperating with *KPDO* with the development of information and other forms of technical assistance to the various local governments encompassed within these Districts. Through this cooperative effort, the two agencies are endeavoring to establish coordinated areawide collection and disposal of solid waste. As a result of their cooperation, solid waste management requirements are rapidly becoming a part of the urban planning process and the development efforts of regional agencies.

REGIONAL PLANNING AGENCIES

The 15 Area Development Districts (*ADD's*) are keystones of the overall development program in Kentucky. It is their purpose to enhance the development opportunities in their respective areas by organizing the whole range of federal and State programs that affect each District. Through coordination, efforts can be made to solve the growing number of problems that extend beyond the jurisdictions of individual governmental units. The *ADD's* provide the means for assembling the Areas's community and county leaders in order that they may work together toward the solution of their community and county problems.

LOCAL GOVERNMENTS

COUNTIES

For any public project, a fiscal court may acquire or condemn land, issue revenue or general obligation bonds, and levy property taxes to pay for the projects. These powers generally are included in *K.R.S. 67.085, 58.020, 68.090, 68.125, and 103.290*; Counties containing at least 50,000 population (*K.R.S. 68.198*) may levy occupational taxes. *K.R.S. 68.180* provides these same powers for counties with more than 300,000 population.

The Kentucky Revised Statutes do not specify solid waste services as a public project and within a fiscal court's power. The Kentucky Court of Appeals has permitted a fiscal court to issue bonds to pay for a county incinerator, thus a fiscal court apparently can engage in such services. Specific authority has been given counties to perform these services by being part of an Urban Services District (*K.R.S. 108.070*) or a Garbage Disposal District (*K.R.S. 109.020*).

Although a fiscal court does not have the power to abate nuisances to health, the county attorney shall prosecute all violations of Kentucky's public health laws (*K.R.S. 211.240*), and local health units may enforce their local regulations (*K.R.S. 217.245*) and abate nuisances (*K.R.S. 213.210*).

CITIES

All classes of cities may issue bonds (*K.R.S. 58.020*) and use general funds to pay for public projects (*K.R.S. 58.130*). A city's general powers allow it to acquire land (*K.R.S. 65.010*) for and engage in solid waste services. All cities may levy taxes authorized by the Kentucky Constitution (*K.R.S. 92.281*).

Garbage collection is a normal municipal function and, therefore, constitutes a public project. In first-class cities, the responsibility for garbage collection by statute is placed in the Department of Sanitation (*K.R.S. 83.171*). In other cities, this service can be performed directly or be franchised to a private concern. The statutes which confer these general powers to cities are:

- 1st Class–*K.R.S. 83.010*
- 2nd Class–*K.R.S. 84.150*
- 3rd Class–*K.R.S. 85.170*
- 4th Class–*K.R.S. 86.110*
- 5th Class–*K.R.S. 87.070*
- 6th Class–*K.R.S. 88.080*

In addition, a city may utilize the Garbage Disposal Act (*K.R.S. 94.280 to 94.287*) to provide such services. This Act, coupled with the power of the first-class city (*K.R.S. 93.100*) and the second- through sixth-class cities (*K.R.S. 94.280*) to acquire garbage dumps, constitutes an alternative legal base for providing such services. Finally, a city may be part of an Urban Services District or a Garbage Disposal District.

All cities have the power to enact ordinances to protect and abate conditions endangering public health. All City Attorneys are to enforce the Kentucky public health laws (*K.R.S. 211.240*); City Health Boards are to abate nuisances according to State health laws and local health regulations (*K.R.S. 212.210*). The statutes authorizing these general powers are:

- 1st Class–*K.R.S. 82.172*
- 2nd Class–*K.R.S. 84.210 and 84.220*
- 3rd Class–*K.R.S. 85.120 and 85.180*
- 4th Class–*K.R.S. 86.140 and 86.150*
- 5th Class–*K.R.S. 87.070*
- 6th Class–*K.R.S. 88.080*

V. PROBLEMS AND NEEDS

INTRODUCTION

A Comprehensive Solid Waste Management Program for Kentucky must be oriented toward both the management practices needed to provide solid waste collection and disposal services and the regulation of these services to assure that the public health and natural environment are protected. This Section outlines the primary problems and needs related to both of these requirements.

Solid waste problems are public health problems that are related to most other areas of public health concern. For example, indiscriminate disposal of solid waste can result in epidemics originating from associated toxicosis or zoonosis conditions. They are also natural environment problems that directly affect all areas of Kentucky's environment–*air, land, and water*. The solutions to these problems cannot be treated independently. While a community or county generates its own waste, there are few political units in Kentucky that can independently dispose of this waste safely and economically. Similarly, the regulation of these practices by the State or local jurisdictions cannot be accomplished effectively and fairly through independent actions by the existing welter of regulatory agencies. The solutions can only be developed through common understanding of the existing and potential problems and through coordinated efforts of both public and private groups.

The development of a Comprehensive Solid Waste Management Program will require a systematic approach to the identification and rectification of specific problems within the 15 Area Development Districts (*ADD's*) and in local areas. This Section illustrates the need for coordinated actions among State agencies and local governments. Section VI of this report focuses upon how the Solid Waste Program in the Kentucky State Department of Health is responding to its role in Kentucky's Comprehensive Solid Waste Management Program. The problems outlined in this Section will clearly illustrate that the Solid Waste Program will require substantial assistance in order to accomplish its purpose. Solid waste management problems are too diverse and too complex for any single program in any Division of any Department of State government to solve.

KENTUCKY'S ENVIRONMENT

PHYSICAL ENVIRONMENT

Sanitary landfills are the main form of ultimate disposal acceptable to the Kentucky State Department of Health, and their development depends entirely upon local terrain, soils, and geology. With roughly 40,000 square miles of area, Kentucky's land surface is highly complex. Its northern and western boundaries are river valleys which vary from the generally narrow, steeply banked Ohio River Valley to the broad, flat,

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alluvial plains of the Mississippi River Valley. In the southeastern corner of Kentucky are true mountains which set the stage for the broad belt of badly dissected plateaus which sweep the eastern and southern third of the State. Large, eroded basins and more dissected plateaus with numerous escarpments and steep-banked streams complete the general Kentucky landscape. With the exception of a few areas like the Central Bluegrass Region, the upland areas throughout Kentucky generally have shallow soils, while river floodplains with deep soils have characteristically high water tables.

> **Problem**: The safe selection, development, and operation of ultimate solid waste disposal sites requires substantial technical evaluation, sound engineering, and careful operational practices.
>
> **Need**: To develop means for safely and efficiently selecting ultimate solid waste disposal sites, and assuring that they are properly engineered and operated.
>
> **Action**: The Solid Waste Program and the Kentucky Program Development Office are preparing guidelines for the location and development of sanitary landfills.

SOCIAL ENVIRONMENT

Kentucky is a pioneer state where farming has been a way of life for almost two centuries. Today, the population of Kentucky is still widely dispersed. Urban centers are small, and in 1960 the majority of the people still lived outside of cities. Most Kentucky counties are small–the 1960 Census recorded less than 20,000 persons in over 70 percent of the counties.

> **Problem**: Neither the average city nor county can provide adequate solid waste collection and disposal services for its citizens.
>
> **Need**: To coordinate the activities of communities and counties in cooperative efforts as a means for establishing adequate leadership, financial, and technical capabilities for providing needed services.
>
> **Action**: The Kentucky Program Development Office (*KPDO*) has established 15 Area Development Districts (*ADD's*) across the Commonwealth and are establishing planning guideline materials for their use. To function within these Districts, development planning groups and Comprehensive Health Planning groups are already being formed and some are functioning.
>
> **Action**: As a primary organization concerned with solid waste management in Kentucky, the Solid Waste Program must develop a routine capability for assisting planning and development groups, public and private, in their efforts to expand and improve solid waste collection and disposal services within the 15 *ADD's*.

Existing solid waste management practices are well-established throughout Kentucky. Improved practices have a higher direct cost than indiscriminate dumping along roadways or on some remote hillside, but total direct and indirect costs to Kentucky for open dumping are great. The income of the average Kentucky family in comparison with most other states is relatively small. The level of urban services provided in the typical small community in the Commonwealth is much less than those available in large urban centers. Low family income, small communities, and widely dispersed economic activities all result in a small economic base for the average political unit. These same factors also contribute to the general unwillingness of community and county fiscal courts to either provide improved services or attempt to increase local taxes.

> **Problem**: While community and county leaders and many individuals would like to have improved solid waste services, the fear of increased taxes and increased living costs restrains individuals and many political leaders realistically fear the loss of their positions.
>
> **Need**: Find means for providing expanded and improved solid waste collection and disposal services at reasonable costs and overcome local fears through systematic educational and informational efforts.
>
> **Action**: Through the various local planning and development groups, both *KPDO* and the Solid Waste Program must provide various forms of technical assistance to improve and expand services at reasonable costs, and to overcome local fears through systematic educational and informational efforts.
>
> **Problem**: Existing cities provide collection and disposal services to only a small part of Kentucky's population, and these services generally exclude hazardous waste generated by industries. Much of the urban growth is occurring outside of incorporated areas where local governments have generally ignored the problem. In some places where services could be provided profitably, private enterprise has filled the needed gap, but adequate collection and disposal services are not available to much of Kentucky's population.
>
> **Problem**: The interspersing of subdivisions, industries, and agricultural activities in urban fringe areas pose a variety of public health hazards. Open dumps comprised of household waste create widespread vector problems. Mosquitoes and flies are known to migrate miles from dump sites. Rats nest in open dumps and can be expected to migrate as much as five miles from their nesting areas in search of food. Other vermin have similar habits. Birds also feed on putrescible materials at dump sites. All of these–*insects, birds, and animals*–are known carriers of disease. Open dumps serve as focal points for the exchange of disease among the various forms of animal life which frequent such sites.

Problem: Industrial materials, even incinerated waste, openly dumped in urban fringe areas may be pathologically or toxicologically hazardous. Uncontrolled access to industrial waste dumps can result in disease or injury to children or other scavengers. Moreover, such dumps may result in poisoning of wildlife both at the site and by the movement of leachates in surface or groundwater.

Problem: Incinerator residue piles can be more dangerous than other forms of refuse because they give the illusion of safety from pathological materials. Numerous studies since 1965 have shown that pathological materials can survive operational incineration practices. Other studies have shown that sterile residues can be rapidly repopulated with pathogenic materials from the air and wildlife. More importantly, rainwater leaching through incinerator residues normally generates both soluble and insoluble pollutant materials.

Problem: Animal and vegetable waste from agricultural activities normally harbor a variety of fungal, bacterial, and viral agents, many of which are directly transmissible to humans. As one example, histoplasmosis is an infection that can be contracted from fungus agents typically found in poultry and animal manures and can be fatal to infants and small children. The disease apparently can be transmitted by birds and animals and as fungus spores through the air or water.

Need: Solid waste collection and disposal services on a regular, at least weekly, schedule are essential in all densely settled areas regardless of political jurisdictions.

Need: Open dumps of all types must be eliminated to protect the public health and the natural environment.

Action: Local and regional planning and development groups, including private collectors and disposal site operators, are being encouraged by the Solid Waste Program to undertake a multi-pronged program of:

- Unifying local leadership to focus upon solid waste problems

- Overcoming the traditional fears associated with new and more costly urban services

- Unifying public and private solid waste management practices so that each can contribute to expanded and improved solid waste collection and disposal services

- Familiarizing the public with the numerous problems associated with solid waste disposal and its direct relation to both air and water pollution

Action: The Solid Waste Program and *KPDO* will have to work together to establish essential coordination and cooperation among the numerous State agencies with both direct and indirect responsibilities for the control of the above problems.

Action: The Solid Waste Program, assisted by *KPDO*, through the Area Development, Comprehensive Health Planning and Environmental Resources Councils, will have to provide local areas with needed information on the nature of solid waste problems and the means available to solve these problems.

GENERATION SOURCES

Information on solid waste generation in Kentucky is still rudimentary. Only a few larger cities have made attempts to measure the volume of solid waste generated within their jurisdictions. Very few cities have a complete knowledge of the composition and volumes of waste generated within their areas. Therefore, the relative amount of the various types of solid waste that result from the daily living in a Kentucky community can only be approximated. Information on solid waste generated outside of Kentucky cities is still virtually nonexistent.

Based upon estimates for the nation, solid waste from the urban areas make up about seven percent of the total volume generated each day.* Waste from the nation's industrial and manufacturing concerns comprise another three percent of the total. Roughly 58 percent of the total daily volume is animal and vegetable waste from agricultural activities. Waste from the various mineral industries, including mining, milling, and processing industries, generate almost 31 percent of the total volume of each day's solid waste.

The amount of solid waste being generated daily in Kentucky by each of these general groups is still largely unknown. Therefore, their effects upon the public health and natural environment are largely unknown.

COMMUNITIES

Solid waste collection and disposal has been largely recognized as a city problem. Usually where businessmen from the trade and services sector comprise the bulk of a town's leadership, the community has recognized the need to provide service to the commercial sector. Most communities have only a few industries, and because their waste is sometimes unusual and hazardous, industries generally have had to provide their own means of disposal.

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*Office of Science and Technology, Executive Office of the President, Solid Waste Management: A Comprehensive Assessment of Solid Waste Problems, Practices, and Needs, (Washington, D. C., May 1969), p. 7.

Wherever urban growth has occurred, the city fringes, largely outside of the incorporated areas, tend to expand most rapidly. Much of this fringe area growth in Kentucky has resulted in an interspersing of suburban, residential, and industrial development with existing agricultural activities. Many agricultural activities are specialty enterprises, such as dairies, poultry producers, and animal feeding operations, which have traditionally disposed of their waste on remote parts of the farm. In addition, many suburban households and most industries must find their own means for disposing of their solid waste.

Changing trends in the American way of life have also resulted in a change in the composition of the typical household's solid waste. New materials appear regularly and industry's planned-product obsolescence results in a bewildering variety of discarded materials. Garbage as a component of household refuse is declining while packaging materials have increased the combustible content of refuse. In addition, increased use of alumimum and plastics have resulted in new discard materials that are not biodegradable and when combusted, many plastics generate highly undesirable by-products. As a result of the increasing volumes and types of solid waste materials being generated in communities, the collection and safe disposal of these waste becomes more difficult. The result is that solid waste handlers injury rates are among the highest of any occupation in the nation. Community costs for collection and disposal of solid waste, when all costs are considered, have become one of the leading items in every community's budget.

> Problem: Community collection of solid waste in Kentucky is a dangerous occupation and a high-cost budget item that generally has been taken for granted by many community leaders. Few communities provide complete collection services to household, commercial and industrial establishments.
>
> Need: The high cost of solid waste collection can only be reached through the concerted efforts of community leaders to plan and initiate more effective management practices.
>
> Action: The Solid Waste Program, assisted by the Kentucky Program Development Office, has technical information in preparation that will assist local leaders in evaluating their needs and undertaking programs to improve services.

INDUSTRIES

Kentucky is an industrial State, and industrial process or manufacturing waste comprises a very significant portion of the total waste generated in the Commonwealth. Industrial waste is of many types and must be handled according to the composition and volume generated at each establishment. Some of this waste is putrescible, some is toxic, and some becomes toxic or volatile when combined with other materials.

Problem: The Solid Waste Program has little information on the composition and volume of industrial process waste generated in Kentucky. Little information is available on the composition and amount of industrial waste taken to ultimate disposal sites, and only a very few industries have obtained Kentucky State Health Department permits for on-site disposal.

Need: Industrial establishments should be regularly inspected to determine the composition and volume of waste being generated, how these waste are being transported over Kentucky highways, and how they are being disposed of or destroyed.

Action: The four regulatory agencies within the Division of Environmental Health, Kentucky State Department of Health, will have to coordinate activities and participate in a unified evaluation of waste generated by Kentucky industries.

- *The Occupational Health Program* is concerned with the composition of industrial process materials in terms of worker safety. This program already has files on the composition of hazardous materials used in Kentucky process industries.
- *The Air Pollution Control Program* which functions for the Kentucky Air Pollution Control Commission, is concerned with the incineration processes used to destroy industrial waste materials.
- *The Water Pollution Control Program* which functions for the Kentucky Water Pollution Control Commission, is concerned with liquid industrial waste and with leachates produced from industrial solid waste disposal sites.
- *The Solid Waste Program* is concerned with identifying the composition and volume of the industrial process waste generated as well as their manner of disposition.

A coordinated effort among these four programs to develop the needed information and establish unified regulations for safety codes for all forms of industrial process waste is essential to the protection of the public health and the natural environment. The investigation and regulation of industrial waste by these four programs must be integrated and must function as a unified industrial waste material safety program if the best interest of Kentucky citizens are to be served.

AGRICULTURE

The primary agricultural and forest waste includes:

- Animal manures
- Forest debris and orchard prunings
- Harvested crop residues
- Animal and poultry carcasses
- Greenhouse waste
- Pesticide containers

The Division of Forestry, Kentucky Department of Natural Resources, has made estimates of debris remaining after forestry operation, but little meaningful information is available on the generation of other forms of agricultural waste.

Problem: While a substantial portion of Kentucky's agricultural activity is carried on in close proximity to the Commonwealth's suburban population, there is a gross lack of information on the waste disposal practices and the effects of these practices upon the public health.

Need: An interagency investigation of the interrelationships of agricultural waste and urban living should be conducted.

Action: Based upon the findings of an investigation of agricultural waste-urban living relationships, the Solid Waste Program, in cooperation with the Kentucky Department of Agriculture and other affected State or local agencies, will then establish needed regulatory measures.

MINERALS

Kentucky is the nation's second largest producer of coal, ball clay, and fluorspar. Barite, zinc, limestone, dimension stone, sand, and gravel are among the other major minerals extracted and processed in the Commonwealth. The amount of waste material generated by mineral industries is prodigious and resulting pollution problems are quite apparent.

Problem: The waste produced by Kentucky's mineral industries are largely solid waste, but because of their usually remote locations, the resultant air and water pollution have been the main problems brought to the attention of Kentucky citizens.

Need: The solid waste problems directly associated with mineral industry activities must be more clearly outlined and the industrial activities more adequately controlled.

Action: The Kentucky Reclamation Commission, a coordinated effort between the Kentucky Department of Mines and Minerals and the Kentucky Department of Natural Resources, along with the Kentucky Air and Water Pollution Control Commissions, has been focusing upon Kentucky's mining problems and is drafting new mining regulations. The Solid Waste Program can usefully participate in the preparation of these new regulations.

Problem: The Solid Waste Program does not have adequate information on the location of existing mineral operations in Kentucky, nor the composition and volume of solid waste being generated by the various mining, milling, and processing activities related to mineral production.

Need: The Solid Waste Program, with assistance from the Division of Strip Mining and Reclamation, should determine the types and magnitudes of solid waste problems resulting from Kentucky's mineral industry activities.

Action: The Solid Waste Program will undertake a program to identify and evaluate the composition and volume of solid waste being generated by the various mining, milling, and mineral-processing establishments in Kentucky as part of the essential industrial survey.

SOLID WASTE MANAGEMENT PRACTICES

The management of solid waste collection and disposal over much of Kentucky is generally inadequate or nonexistent. Most generators of solid waste dispose of discard materials by the most convenient means available to them. A complete survey of illegal roadside dumps would undoubtedly identify more than 1,000 such sites. In the past, any convenient out-of-the way place has been used. For many years, the nearby stream bed has been considered a highly suitable disposal site, because once or twice a year floodwaters would carry the waste away. A view of any of the new Corps of Engineers flood control dams after a heavy rainfall will illustrate the prevalence of this practice. After a particularly heavy storm, it is quite common to see a large area behind these dams completely choked with floating refuse and garbage. No effort has yet been made to determine the losses to Kentucky's recreational potential because of these practices.

COLLECTION AND TRANSPORTATION

Many urban Kentuckians' concern for solid waste disposal ends at the trash can. Many others act as their own collectors and carry their waste to their customary disposal site–usually the nearest roadside location, or the nearby stream bed. Very often, in many communities, little regard is given to the quality of the available collection. Few efforts are made to plan for more efficient collection services even though collection costs account for 75 to 80 percent of the total solid waste service costs. The public generally is not aware that their present solid waste collection and disposal service, when all costs are considered, often rank immediately behind education and road maintenance in the annual community budget. In addition, from national information available, it is apparent that solid waste collectors have one of the highest occupational injury rates in the nation and this contributes to the high cost of collection service.

> Problem: The collection and transportation of solid waste is a hazardous occupation and a high-cost service. Yet communities generally have given little attention to improving the efficiency of present collection or to the means for improving or expanding this basic service.
>
> Need: Local planning and development groups and local governments with assistance from the Solid Waste Program should undertake the planning and development of cooperative interjurisdictional collection and transportation services for both urban and rural populations within these jurisdictions.
>
> Need: Private industries engaged in collection and transportation of solid waste should be encouraged to participate in the planning and development of expanded and improved services, and by franchises or contract, in the operation of services when such methods provide the most efficient and effective service.
>
> Need: A complete guideline procedure document, or set of documents, is needed to enable regional and local development groups to determine the least costly and most effective methods for providing collection and transportation services for solid waste. These guidelines should include procedures for operating and maintaining efficient urban and rural systems.
>
> Action: The Solid Waste Program will undertake a staff development program that will permit it to effectively provide assistance to communities and regions for both planning and development of expanded operational solid waste collection and transportation systems.
>
> Action: The Solid Waste Program and the Kentucky Program Development Office are developing guideline information that can be used by local and regional groups to estimate costs for providing expanded and improved collection services.

PROCESSING

Within Kentucky, 12 cities have centralized solid waste processing units. Eleven of these facilities are municipal incinerators. One community has established a transfer station which compacts the community refuse for transportation to an ultimate disposal site. Central pulverization or shredding units have not yet become established practices in Commonwealth communities.

On the average, roughly 75 percent of the general refuse collected by a community from commercial and household sources is combustible. Efficient incineration can reduce combustible refuse to less than 25 percent of its original volume. Therefore, in terms of the total volume of materials normally collected by communities, incineration can reduce the total volume of general community solid waste that must be disposed of by more than one-half.

Incineration is a high-cost waste reduction process. When operational, maintenance, capital, and administrative costs are fully considered, incinerator costs of between $6 and $12 per ton of refuse input can be expected. Operational costs alone range between $3 and $6 per ton of material incinerated. In larger cities across the nation where stringent air pollution control regulations are enforced, air pollution control equipment has resulted in costs ranging to about $12 per ton of material incinerated.

Shredders and pulverizers are relatively new to municipal solid waste reduction practices. Their costs, too, are high, but Bureau of Solid Waste Management Demonstration projects indicate that total costs approximating incinerator operational costs can be expected. Shredders and pulverizers cannot reduce solid waste materials much below 50 percent of their original volume. However, the demonstration projects indicate that the equipment can accept a wide variety of both combustible and non-combustible material and reduce them to small, easily handled sizes that can be incorporated into sanitary landfills.

Studies by the Bureau of Solid Waste Management (*HEW*) in 1967 showed that even in modern incinerators pathogenic materials can survive the incineration process under operational conditions. A variety of studies has shown that under carefully controlled operational conditions, one to three percent of the residue will consist of putrescible materials. More importantly, very recent studies of incineration processes have identified numerous chemical reactions that occur during the combustion of mixed refuse. These studies clearly illustrate that chlorides, sulfides, and sulfates of many materials are created in normal municipal incinerator residues. Some of these materials are highly toxic, some are water soluble and, when leached from incinerator residue piles, can contaminate nearby surface and groundwaters.

Problem: Insufficient information exists or is in usable form to determine the merits and problems associated with the various forms of solid waste processing techniques and how these techniques can best be used for the reduction of solid waste materials.

Need: An in-depth interagency evaluation, utilizing the research capabilities of Kentucky educational institutions, should be conducted immediately to determine the merits and problems associated with the various forms of solid waste processing techniques and how these techniques can best be used for the reduction of solid waste materials.

Action: The Solid Waste Program, supported by the several State agencies concerned with solid waste reduction processes, will develop a comprehensive research program on the effects of these processes on the public health and the natural environment. This program should utilize the various capabilities within the State universities.

RECYCLING

Recycling refers to the utilization and salvage of materials from solid waste. Industries often internally recycle materials; however, this waste is seldom considered as discard materials. The greater concern is for materials that can be reclaimed by some type of conversion for use once they have been discarded.

Recycling through reclamation of discarded materials is currently being carried on by scavengers at local dumps across Kentucky. Organized business operations related to salvaging materials is carried on in some of the larger urban centers, but these operations generally are keyed to industrial process waste.

The reclamation of material from discarded materials is directly related to the market value of the reclaimed material. The market value of traditional salvage materials–*steel, bottles, paper, and rubber*–generally declined throughout the 1960's; and reclamation operations on a business scale often became unprofitable. Reclamation as a profitable operation is largely dependent upon the development of labor-saving devices and the availability of large quantities of recoverable material in a relatively pure or easily separable form.

Problem: Generally, current solid waste collection practices across much of Kentucky lack the coordination necessary for firms to establish profitable business operations dependent upon materials reclaimed from community waste.

Need: The establishment of Districtwide or multi-District collection and hauling systems will tend to permit greater reclamation of selected solid waste materials. The feasibility of considering expanded reclamation practices as part of the means for paying for large-scale collection and haul systems should be determined.

Action: The Solid Waste Program will include this need in its research requirements program and encourage and assist the universities and others with research capabilities to review existing research and perform the needed investigations related to the reclamation of solid waste.

DISPOSAL

Disposal is the final step for all discarded materials whether they are general household waste, other forms of raw refuse, industrial process materials, sewage sludge, incinerator residue, compost waste, or construction waste. Disposal techniques commonly used in Kentucky are open dumping, open burning, mulching, land spreading, animal feeding, and sanitary landfilling. Open dumping and open burning are traditional practices in many communities, while mulching, land spreading, and animal feeding have been widely used in agricultural and rural areas.

Sanitary landfilling is a disposal method recommended by the Bureau of Solid Waste, U. S. Department of Health, Education, and Welfare (*HEW*); and it is also generally recommended as the desirable method for the disposal of general community waste by the Solid Waste Program, Kentucky State Department of Health. Regulation SW 2 outlined in Appendix A of this report indicates the State-approved techniques for this form of ultimate solid waste disposal.

Problem: Open dumping is a disposal method with the least direct operational costs. However, the indirect costs resulting from diseases and pollution spread from open dumps are high.

Need: The future leaders of the Commonwealth must concentrate on efforts to bring about new and safer practices of solid waste disposal. Concerned individuals have an obligation to point out the hazards of existing practices and thereby lay the groundwork for future development of Kentucky.

Action: The Solid Waste Program will initiate, along with the Division of Clean-up and Beautification, Kentucky Department of Natural Resources, with the assistance of the Kentucky Program Development Office, an effort to establish a strong environmental health and resources protection curriculum in Kentucky schools.

Action: The Solid Waste Program will strengthen and expand its public information activities.

Action: The Solid Waste Program will undertake the development of training programs on solid waste operations and regulations for use throughout the State and local health departments.

Action: The Solid Waste Program will undertake the development of information and training programs for use among the several State agencies within the State government and among the regional planning and development organizations in the 15 Area Development Districts.

REGULATION OF SOLID WASTE PRACTICES

COMMONWEALTH AGENCIES

The actual regulation of solid waste disposal practices in Kentucky is distributed by legislative action among seven agencies in four different Departments of the State government. Within the Kentucky State Department of Health:

- *The Medical Care Standards Program, Division of Medical Care*—regulates the storage and disposal practices at Kentucky hospitals.
- *The Radiological Health Program, Division of Environmental Health*—regulates the disposal of radioactive waste materials.
- *The Solid Waste Program, Division of Environmental Health*—is charged with regulating and issuing permits for ultimate solid waste disposal sites in the Commonwealth.

Among the other Departments within State government with direct solid waste disposal regulatory responsibilities are:

- *The Division of Livestock Sanitation, Kentucky Department of Agriculture*—regulates the disposal of animal carcasses and swine feeding operations.
- *The Division of Maintenance, Kentucky Department of Highways*—regulates, by authorization, the disposal of solid waste on State highway property.
- *The Division of Forestry, Kentucky Department of Natural Resources*—regulates the operation of disposal sites within State forests.
- *The Division of Strip Mining and Reclamation, Kentucky Department of Natural Resources*—for the Reclamation Commission, regulates mining operations and the disposition of mining waste.

Generally exempt from State regulatory agencies are the various federal properties within Kentucky. These include military installations and national forests.

The environmental results of improper solid waste disposal are also regulated by a variety of agencies. In addition to the agencies which regulate actual solid waste disposal practices, several agencies have other environmental control and regulatory capabilities:

- *The Kentucky Air Pollution Control Commission*—regulates and issues permits for the incineration process equipment. (Incinerator residues are the responsibility of the Solid Waste Program.)

- *The Kentucky Water Pollution Control Commission*—controls all ground and surface water contamination sources.

- *The Division of Fisheries, Kentucky Department of Fish and Wildlife Resources*—controls water contamination sources that result in fish kills.

- *The Division of Water, Kentucky Department of Natural Resources*—regulates all forms of construction in the floodplains of streams.

Other regulatory agencies with powers important to solid waste management include:

- *The Occupational Health Program, Kentucky State Department of Health*—regulates occupational practices and the handling of materials that are hazardous to the health of workers.

- *The Division of Law Enforcement, Department of Motor Transportation*—regulates and enforces the movement of goods and materials by commercial truckers and regulates the transportation of solid waste.

Further enforcement of solid waste disposal practices in Kentucky is distributed among the following authorities:

- *The State Police*—enforce all State laws along the roadways of Kentucky.

- *All local peace officers including sheriffs, magistrates, constables, county and local police*—enforce all State laws within the areas of their jurisdictions.

Finally, when specifically required by Statute, the Attorney General for the Commonwealth initiates civil and criminal litigation. Some State agencies are specifically permitted by Statute to initiate litigation for civil violations. However, the Attorney General represents the Commonwealth in all cases appealed to the Court of Appeals.

In summary, seven agencies of State government directly control solid waste disposal practices; four more have related environmental control regulatory capabilities; two have regulatory powers important to solid waste management; and normal law enforcement agencies, both State and local, are charged with the enforcement of state solid waste laws and regulations.

Problem: The regulatory powers affecting solid waste management in Kentucky are distributed among several State agencies whose policies, procedures, and actions are presently uncoordinated, resulting in reduced effectiveness.

Need: The activities of the State agencies directly and indirectly responsible for the regulation and enforcement of solid waste disposal practices in Kentucky should be reviewed to determine the need for maintaining such a variety of regulatory authority and to establish policies for the closer coordination of the several separate authorities.

Action: Commissions with independent action authority and agencies with Departments functioning independently of each other to solve totally interrelated environmental health and resources problems result in a confusion of authority and action. Therefore, the establishment of an Interdepartmental Task Force will be requested to evaluate the State governmental structure related to the control of Kentucky's environment to determine the benefits to be derived from the establishment of a single State agency responsible for the protection and enhancement of the environmental resources of the Commonwealth.

Problem: The Solid Waste Program must perform a major role for the Commonwealth in the abation of pollution from solid waste. However, its status as a Program within the Environmental Health Division of the Kentucky State Department of Health places it in a disadvantaged position in comparison with the Commonwealth's other environmental control agencies. These include:

- Reclamation Commission
- Water Pollution Control Commission
- Air Pollution Control Commission
- Division of Fisheries, Kentucky Department of Fish and Wildlife Resources

Need: The Solid Waste Program should be elevated to the level of a Division within the Kentucky State Department of Health in order to have adequate operational capabilities to perform its functions. Because of its broadened significance, environmental health functions of the Kentucky State Department of Health should be administered from a Deputy Commissioner level within the Department.

Action: The Commissioner of Health will be requested to review the existing organizational structure of the Department as related to Environmental Health and undertake the necessary actions to raise the status of the Solid Waste Program to a level that will permit it to more effectively perform its functions. The establishment of a Deputy Commissioner of Environmental Health with responsibilities for the administration of the Commonwealth's environmental health programs will be proposed as part of the requested Commissioner review and action.

Problem: Solid waste disposal practices used by the several State agencies such as the Department of Finance, the Department of Highways, and the Department of Parks affect the regulation enforcement capabilities of the Solid Waste Program.

Need: State agencies which operate solid waste disposal sites should adhere to the solid waste disposal regulations established by the Kentucky State Board of Health. In addition, State agencies which contract for waste disposal services should require that those providing such service also adhere to State solid waste disposal regulations.

Action: The Solid Waste Program will confer with the Commissioner of Health on the need to have all agencies of State government comply with solid waste disposal regulations.

VI. THE KENTUCKY SOLID WASTE MANAGEMENT PLAN

INTRODUCTION

This Section presents the five-year, statewide Solid Waste Management Plan of the Solid Waste Program of the Kentucky State Department of Health. This plan will serve as the guideline document for administering the Comprehensive Solid Waste Management Program established by the Kentucky General Assembly and documents in *K.R.S. 211.700 through 211.730 and K.R.S. 211.992.*

The initial phase of the Kentucky Comprehensive Solid Waste Management Program's development consisted of a three-year planning program. A functional part of this planning program was the gradual establishment of operational activities which formed much of the basis for identifying the required plan elements. Only from these operational activities was it possible to identify many of the State-level problems relating to solid waste management. Because of the newness of statewide solid waste management efforts, the operational activities had to be approached by trial and error, the problems observed, and corrective actions considered.

The complexity of solid waste management on the State level is evident from the wide range of activity programs that must be developed by the Solid Waste Program during the five-year period of this plan. Furthermore, the administrative activities required to review and monitor federal programs in Kentucky related to solid waste management can be expected to increase in scope during the 1970's. A maximum effort will be required to coordinate activities of the several State agencies with regulatory functions directly relating to solid waste management. Out of these coordination efforts, new problems can be expected for which activity programs will have to be developed.

Each year the entire five year management plan will be reviewed and a new five year plan will be constructed. This review will appraise the accomplishments of the previous year and reallocate manpower requirements in response to:

- Activity accomplishments
- New activity requirements
- Manpower capabilities
- Fiscal considerations

Based upon this review, activities and manpower estimates will be adjusted for the remaining four years and a new fifth year program will be added.

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Every Kentuckian is affected by this plan, and how well it is implemented will depend not only on the efforts of the Solid Waste Program, but also upon the continued cooperation from the majority of individuals, local governments, and State agencies within the Commonwealth.

The Solid Waste Program's operations have been organized into four functions. These include:

ADMINISTRATION (A-FUNCTIONS)

Administration activities are the normal housekeeping functions of the program and include:

- Basic administrative routines
- Administration of Kentucky programs related to proper solid waste disposal
- Coordination efforts among the several regulatory agencies
- Development of functional activities
- Management Plan review

INFORMATION DEVELOPMENT (ID-FUNCTIONS)

Information Development pertains to data or materials obtained for use by the Solid Waste Program and consists of:

- Identification of data or materials requirements
- Establishment of procedures to obtain or develop required information
- Routine assembly (cataloguing, filing, and retrieval) of required data by mechanical processing or other means
- Routine evaluation of data
- Preparation of technical information on solid waste management practices
- Preparation of reports on the Kentucky Comprehensive Solid Waste Management Program

REGULATION (R-FUNCTIONS)

The enforcement of Solid Waste disposal regulations consist of:

- Investigation of ultimate disposal sites
- Evaluation of site operational practices and conditions
- Processing of permits for sites
- Initiation of public hearings or litigation to enforce regulatory functions

TECHNICAL ASSISTANCE (TA-FUNCTIONS)

Technical assistance as used in this plan refers to the physical acts of providing technical and educational information on solid waste problems, improved solid waste collection and disposal practices, and solid waste disposal regulations to:

- Individuals
- Private organizations
- Local governments
- Regional planning organizations
- State agencies

As the several Solid Waste Program functions are developed, the supplementary operational activities required to support the program efforts will be defined. Because these are generally continuing or periodic activities, unless otherwise specified, the activity description appears only in the fiscal year during which these activities begin.

GOALS

The Kentucky General Assembly in *K.R.S. 211.703* directed that it was to be the policy of the State

> *"...to provide for the disposal of solid waste in a manner that will protect the public health and welfare, prevent the spread of disease and creation of nuisances, conserve our natural resources, and enhance the beauty and quality of our environment."*

This policy statement established the primary goal of the Kentucky Comprehensive Solid Waste Program.

K.R.S. 211.723 states

> *"The department is hereby designated the single state agency for this state for all purposes of the Federal Solid Waste Disposal Act (Public Law 89-272) as it exists or may be amended and for the purposes of such other federal legislation as may hereafter be enacted to assist in the propoer disposal of solid waste."*

Based upon this authorization and the intent of *Public Law 89-272*, the Solid Waste Program as a secondary area of emphasis intends to direct its efforts toward

- the development and improvement of the quality and effectiveness of operational solid waste management practices throughout the Commonwealth and to assist the expansion of such practices by public or private means to both urban and rural populations in Kentucky.

OBJECTIVES

The Kentucky Solid Waste Management Plan has been developed as the means for accomplishing the directives of the General Assembly relating to the proper disposal of solid waste. From these broad directives, or goals, the Solid Waste Program has identified six basic objectives upon which to base its functional programs and operational activities. The following objectives articulate the broad aims of the program and provide direction for the five-year plan period:

- To develop an administrative framework, including both federal and Commonwealth requirements for all programs within the Commonwealth related to the Solid Waste Disposal Act (*Public Law 89-272*) and such other federal legislation as may hereafter be enacted to assist in the proper disposal or conversion of solid waste

- To identify the nature and extent of problems relating to solid waste as they become apparent or are brought to the attention of the Commonwealth by any of its citizens

- To coordinate with appropriate State agencies in order to clarify the nature and extent of identified problems, establish agency responsibilities, and initiate remedial and preventive action programs required to control or eliminate the problem situations

- To develop and enforce regulations for the proper disposal of solid waste. Such regulations will incorporate the significant regulatory measures of those other agencies concerned with the protection of the public health and welfare and the natural environment

- To obtain on a regular basis

  - Information on agency enforcement of State solid waste laws and regulations

  - Information on solid waste managment practices throughout Kentucky

  - Additional information significant to the Kentucky Comprehensive Solid Waste Management Program

  - Maintain this information in a systematic and orderly manner

  - Prepare reports and public information documents on the development of the Comprehensive Solid Waste Management Program

- To provide technical assistance to

  - Individuals

  - Private organizations

  - Public bodies

  - Local agencies

  - Regional agencies

  - State agencies

  through:

    - direct consultation

    - published information

    - information programs

    - educational training sessions

  in order to obtain the widest possible dissemination of regulatory and technical information essential for the proper disposal of solid waste throughout the Commonwealth

FUNCTIONAL PRESENTATION EXPLANATION

The following summary of functional activities presents the Solid Waste Program's Activity Plan for each fiscal year of the five-year plan period. Programs have been identified according to their function and the year initiated according to the following procedures:

- The letter prefix refers to the main Solid Waste Program functions
    - A - Administration
    - ID - Information Development
    - R - Regulation
    - TA - Technical Assistance
- Following the letter prefix is a three-digit number
    - The first two digits indicate the fiscal year in which that functional activity began
    - The last digit refers to the sequential listing of the new activities undertaken in that functional area during that fiscal year
- Functional activities initiated in one year may continue to successive years. The original index number is then carried to the subsequent fiscal year as a continued function

Example:

> A-691: Department of Health Requirements–
> (This is an Administrative Function which began in fiscal year 1969 and was noted as the first activity of that fiscal year. This functional activity appears with each year's activities throughout the life of the plan.)

Following each functional activity description is a manpower allocation estimate by manweeks. These manpower allocations have been included as a means for estimating the Solid Waste Program's staff requirements for implementing the functional activities outlined in this plan. These estimates have been categorized according to professional and secretarial requirements.

- Professional manpower refers to the administration, planning, research, technical assistance, and the technician activities associated with the program's regulatory function

- Secretarial manpower refers to the variety of office activities including secretarial, filing, typing, and routine data processing clerks and statisticians

FISCAL YEAR 1970 FUNCTIONS

ADMINISTRATION

A-691: **Department of Health Requirements**–routinely conform with the various Kentucky State Department of Health regulations, policies, procedures, and directives to develop and submit all required statements and reports to the appropriate Divisions and Programs within the Department

Manpower Allocation (manweeks)

Professional - 45

Secretarial - 24

A-701: **Federal Program Administration**–determine the requirements for establishment, development, and administration of regulations, policies, procedures, directives, and materials needed for the administration of programs within Kentucky developed under the Federal Solid Waste Disposal Act (*Public Law 89-272*) as it exists or may be amended and for the purposes of such other federal legislation as may hereafter be enacted to assist in the proper disposal of solid waste.

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 2

A-702: **Permit Charges Investigation**–investigate the procedures or other requirements for establishing a reasonable charge or fee for the issuance of an initial or renewal permit for all ultimate solid waste disposal sites in Kentucky. This fee is needed to defray the costs of regulatory activities and improvement of capabilities to protect the public health and the natural environment

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-703: Compliance by State Agencies—confer with the Commissioner of Health on the need to have all agencies of State government comply with solid waste disposal regulations. Lack of this support weakens the legal capability of enforcing the several regulatory measures related to solid waste

Manpower Allocation (manweeks)

Professional - 1

Secretarial - 1

A-704: Use of Other Agency Personnel—investigate procedures available through the Comprehensive Health Planning Council for obtaining technical personnel from other State agencies during Fiscal Year 1971 to assist the program in developing its administrative and technical assistance activities

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-705: **Department of Public Safety Coordination**–develop procedures to effectively utilize the capabilities and authority of the Department of Public Safety needed to enforce the program's regulatory responsibilities

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-706: **Educational Institution Research**–determine research priority needed to give direction to the activities of the several education institutions in the Commonwealth in order that these institutions can undertake research projects that will result in:

- The improvement of knowledge on the hazards of solid waste to the public health and the natural environment
- The development of improved operational solid waste management practices

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

A-707: **Management Plan Review**–review and appraise the accomplishments of the previous year's functional activities and reallocate manpower requirements in response to:

- Activity accomplishments
- New activity requirements
- Manpower capabilities
- Fiscal considerations

Based upon this review, adjust functional activities and manpower allocations for the remaining four-years of the plan period and add requisite information for a new-fifth-year program

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

INFORMATION DEVELOPMENT

ID-701: **System Development Guidelines**–obtain and maintain information on methods for determining solid waste management system requirements, overall system costs, and methods for locating sanitary landfill sites. This information will be used to provide technical assistance to regional Comprehensive Health Planning Councils, local governments, and other planning and development organizations. System-development information of this type gradually will be expanded to include:

- Transfer stations and haul systems
- General community solid waste storage practices
- Rural container collection practices
- Hazardous waste storage practices
- Storage containers
- Other new techniques or procedures as developed

Initial guideline materials to be developed in Fiscal Year 1970 will consist of:

- Cost estimation procedures for solid waste management systems

- Methods for locating sanitary landfill sites (work to be accomplished by contract with *KPDO* assistance)

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

ID-702: **Initial Solid Waste Management Plan**—conduct surveys and interviews and develop information required for completion of the Comprehensive Solid Waste Management Plan prior to June 30, 1970 (plan completion will be by contract with *KPDO* assistance)

Manpower Allocation (manweeks)

Professional - 58

Secretarial - 7

REGULATION

R-701: **Applications Review**—routinely review applications for the establishment and continuation of ultimate solid waste disposal sites prior to the issuance of an operational and construction permit for that site

Manpower Allocation (manweeks)

Professional - 25

Secretarial - 2

R-702: **Disposal Site Inspection**—on a routine basis, in coordination with the several health officials throughout Kentucky, determine the conditions of all ultimate solid waste disposal sites and facilities and bring them into compliance with the solid waste regulations of the Kentucky State Board of Health

Manpower Allocation (manweeks)

Professional - 75

Secretarial - 10

TECHNICAL ASSISTANCE

TA-691: **Solid Waste Film**—assist the Local Health Services Program to produce a documentary film on solid waste problems in Appalachian Kentucky, as an education tool for general public information

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

TA-701: **Regional and Local Planning Assistance**—provide solid waste collection and disposal system planning and development assistance to Regional Comprehensive Health Planning Councils, local governments, and other planning and development organizations. Such assistance might include:

- Formation of garbage and refuse districts including service area determination
- Plan preparation
- Site selection

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 4

TA-702: **Information and Technical Assistance**—provide guidance and technical information on solid waste and assist the several State agencies, regional organizations, local governments, and private organizations to obtain information and technical assistance from sources—both public and private—which can assist the improvement of both regulatory and operational solid waste management in Kentucky

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 2

TA-703: **Permit Applicants Conferences**—conduct planning conferences with solid waste disposal site applicants to clarify application and site development requirements and regulations for operations

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A summary of total manpower allocation requirements for Fiscal Year 1970 appears in Table 14.

Table 14
Manpower Allocation Summary
Solid Waste Program
FY 1970 Functions

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Administration	68.0	31.5
A-691	45.0	24.0
A-701	4.0	2.0
A-702	2.0	0.5
A-703	1.0	1.0
A-704	1.0	0.5
A-705	1.0	0.5
A-706	10.0	2.0
A-707	4.0	1.0

Table 14 (cont'd.)

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Information Development	62.0	8.0
ID-701	4.0	1.0
ID-702	58.0	7.0
Regulation	100.00	12.0
R-701	25.0	2.0
R-702	75.0	10.0
Technical Assistance	19.0	9.0
TA-691	4.0	1.0
TA-701	6.0	4.0
TA-702	4.0	2.0
TA-703	5.0	2.0
Total Manpower Requirements For FY 1970	249.0	60.5

FISCAL YEAR 1971 FUNCTIONS

ADMINISTRATION

A-691: Department of Health Requirements

Manpower Allocation (manweeks)

Professional - 40

Secretarial - 40

A-701: Federal Programs Administration

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 2

A-706: Educational Institution Research

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

A-707: Management Plan Review

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-711: Review Organizational Structure–request the Director of the Division of Environmental Health and the Commissioner of Health to undertake a re-review of the existing organizational structure under which the Solid Waste Program is operating and take the necessary action to raise the status of the Solid Waste Program to a level that will permit it to more effectively perform its functions. The Commissioner will be requested to establish a Deputy Commissioner of Environmental Health as a means for guiding the expanding activities in this field.

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-712: **Interagency Review**—request, through the Director of the Division of Environmental Health and the Commissioner of the Kentucky State Department of Health, that the Governor of Kentucky establish an Interagency Task Force to:

- Evaluate the State governmental structure related to the control of Kentucky's environment

- Determine the benefits to be derived from the establishment of a single agency responsible for those aspects of public health and the enhancement of life in Kentucky related to the development of the Commonwealth's natural environment

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-713: **Health Department Coordination**—coordinate with the following State Health Department agencies to:

- Initiate—as a cooperative effort with the Kentucky Water Pollution Control Commission—a program to clarify and define the separate responsibilities and functions of the two agencies in order to establish complementary regulatory activities that provide adequate public health and natural environment protection without contradictory or overlapping efforts

- Initiate—as a cooperative effort with the Kentucky Air Pollution Control Commission—a program to clarify and define the separate responsibilities and functions of the two agencies in order to establish complementary regulatory activities that provide adequate public health and natural environment protection without contradictory or overlapping efforts

- Establish cooperative procedures for processing plumbing permit requests for those solid waste disposal sites that alter or install new sanitary system facilities through the Plumbing Program, Division of Environmental Health

- Establish procedures for ultimate solid waste disposal site review in coordination with the Sanitary Engineering Program to assure that such sites do not contaminate public water supplies

- Determine the types of information available on facilities regulated by the Environmental Health Services Program, Division of Environmental Health, in relation to the storage of solid waste; the utility of this information to comprehensive solid waste management; the extent of existing regulation procedures and standards; related to these waste, and the need for further regulatory measure or other actions

- Determine methods and procedures to identify industries producing hazardous waste through the Occupational Health Program, Division of Environmental Health

- Initiate complementary procedures and activities in relation to solid waste disposal by the Solid Waste Program and the Radiological Health Program, Division of Environmental Health

- Establish in coordination with the Division of Medical Care, Medical Care Standards Program:

    - Regulatory responsibilities with respect to the storage and disposal of solid waste from hospitals

    - The types and volumes of solid waste generated by hospitals

    - Procedures and guidelines for the safe storage, collection, hauling, processing, and ultimate disposal of such waste

Manpower Allocation (manweeks)

Professional - 40

Secretarial - 5

A-714: **Staff Development**–undertake a staff development program, including formal training programs and conferences, that will permit the Solid Waste Program to effectively provide assistance to communities and regions for both planning and developing expanded and operational solid waste collection, transportation, and disposal systems

Manpower Allocation (manweeks)

Professional - 24

Secretarial - 6

A-715: **Mining Regulations Development**–participate in the preparation of new mining regulations presently under development by the Reclamation Commission in coordination with the Kentucky Air and Water Pollution Control Commissions

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 1

A-716: **Highway Department Coordination**–develop procedures for regularly obtaining and cataloguing right-of-way disposal sites used through the permission of the district highway engineers in order to establish the volumes and types of waste being disposed of at these sites and the potential hazards, if any, to the public health and the natural environment

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-717: **Department of Motor Transportation Coordination**–coordinate with the Department of Motor Transportation to regularly obtain information on the identification of owners of vehicles engaged in interstate commerce for the purpose of transporting solid waste into Kentucky

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-718: **Reduction Processes Review Program**—develop a cooperative program among the several State agencies with appropriate technical capabilities to review the techniques and effectiveness of the various forms of solid waste reduction processes such as shredding, compacting, pyrolization, etc., to:

- Obtain or develop information on these processes
- Compile state-of-the-art statements on the reviewed processes
- Publish and distribute compiled information as a technical information service
- Evaluate existing regulations related to reviewed processes and modify as necessary

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

A-719: **Education Publications Program**—develop a program through the Office of Health Education for regularly compiling, publishing, and within the capabilities of the program, distributing publications on the potential hazards of solid waste and the potential harm of unsafe solid waste handling and disposal practices

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 3

ID-701: **System Development Guideline**

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 10

ID-711: **Policies Manual**—develop and maintain a Policies Manual on regulations, policies, procedures, directives, and materials essential to the operation of the Comprehensive Solid Waste Management Program and its enforcement by the several public health and other enforcement officials within the Commonwealth of Kentucky.

The following topics have been defined for initial inclusion in the Policies Manual:

- Procedures for the evaluation of requests for continuation or renewal of requests for continuation or renewal of permits for approved ultimate solid waste disposal sites
- Inspection procedures and materials for all ultimate solid waste disposal sites in Kentucky and for all collectors, both public and private, who regularly collect and disposal of solid waste for the general public in order to assure that they dispose of this waste at a permitted site. In conjunction with this program development effort, a training program to inform regional and local health officers of these inspection procedures and materials will also be developed
- Appropriate precautions that conform with the Department of Fish and Wildlife Resources regulatory authority on the protection of fish and wildlife. In addition, in coordination with this Department, the Solid Waste Program will develop procedures for the closing of ultimate solid waste disposal sites in a manner that will not endanger desirable forms of wildlife
- Revision of existing guidelines related to the program's procedures for the closing of ultimate solid waste disposal sites
- Procedures to effectively utilize the capabilities and authority of the Department of Public Safety as needed to enforce the program's regulatory responsibilities

- Procedures to assure that the development and operations of these sites will conform to appropriate program requirements related to the conservation and protection of natural resources, flood control, and strip mining and reclamation as administered by the Department of Natural Resources

- Include Department of Agriculture regulatory constraints:

    - Scavenging by livestock at sanitary landfill sites will be prohibited

    - When issuing a site permit, instruct the sanitary landfill operator of means for burying dead animals in conformance with the Department of Agriculture's regulations

- Develop written procedures for the evaluation of requests for continuation or renewal of permits for approved ultimate solid waste disposal sites. These procedures will be distributed to local health departments

Manpower Allocation (manweeks)

Professional - 50

Secretarial - 20

ID-712: Data and Materials Maintenance System—develop a coordinated system of cataloguing, reviewing, reporting, and evaluating data and information elements required by a Comprehensive Solid Waste Management Program. This system will include regional and local health department procedures and will be developed to permit gradual conversion to data processing techniques

Manpower Allocation (manweeks)

Professional - 30

Secretarial - 20

ID-713: Industrial Activities Information—initiate an information development program in cooperation with the Occupational Health Program, the Air Pollution Control Program, and the Water Pollution Control Program, and related State agencies to:

- Systematically identify, catalogue, and exchange data on waste being generated by all industries in Kentucky

- Routinely obtain, maintain, and process information on the various forms of waste generated by manufacturing industries throughout Kentucky

- Determine chemical or putrescible characteristics and the practices related to the storage, collection, hauling, processing, and ultimate disposal of industrial waste. This effort will be undertaken to determine the required unified, industrial process waste safety code regulations and enforcement procedures essential to the protection of public health and of the natural environment

Manpower Allocation (manweeks)

Professional - 100

Secretarial - 40

ID-714: Technical Information–routinely obtain and maintain technical information on solid waste subjects in support of the Program's Technical Assistance function

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-715: Training and Development Information–routinely obtain and maintain information in support of the Solid Waste Program's internal manpower training and development program

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

REGULATION

R-701: **Applications Review**

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

R-702: **Disposal Site Inspection**

Manpower Allocation (manweeks)

Professional - 65

Secretarial - 15

R-711: **Garbage and Refuse Disposal District Plan Review**—review, evaluate, and approve all plans for the operation of Garbage and Refuse Disposal Districts as set forth in *K.R.S. Chapter 109*

Manpower Allocation (manweeks)

Professional - 3.0

Secretarial - 0.5

TECHNICAL ASSISTANCE

TA-701: **Regional and Local Planning Assistance**

Manpower Allocation (manweeks)

Professional - 36

Secretarial - 8

TA-702: Information and Technical Assistance

Manpower Allocation (manweeks)

Professional - 14

Secretarial - 4

TA-703: Permit Applicants Conferences

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

TA-711: Federal Program Assistance–provide public and private groups with information on the availability of federal assistance in areas related to solid waste management and assist these groups in the preparation of applications to the appropriate federal agencies which can provide the needed assistance

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

TA-712: Administrative Service Training–routinely participate in regional and local health training programs conducted by the Division of Administrative Services, Kentucky State Department of Health, as a mechanism for training local health officials

Manpower Allocation (manweeks)

Professional - 4.0

Secretarial - 0.5

TA-713: Public Officials Training–have training programs developed for members of boards, commissions, agencies, and elected officials on both the State and local level on topics related to the improvement of solid waste disposal practices

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-714: **State Agencies Training**–conduct training programs for State agencies, regional organizations, and local governments on improved techniques for providing solid waste services (*through efforts accelerated by continual arrangements through KPDO*)

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-715: **Public Education**–routinely develop and distribute to the general public information and educational materials on the potential hazards of solid waste and potential harm of unsafe solid waste handling practices

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A summary of total manpower allocation requirements for Fiscal Year 1971 appears in Table 15.

Table 15
Manpower Allocation Summary
Solid Waste Program
FY 1971 Functions

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Administration	152.0	64.0
A-691	40.0	40.0
A-701	4.0	2.0
A-706	10.0	2.0
A-707	4.0	1.0
A-711	2.0	0.5
A-712	2.0	0.5
A-713	40.0	5.0
A-714	24.0	6.0
A-715	6.0	1.0
A-716	2.0	0.5
A-717	2.0	0.5
A-718	10.0	2.0
A-719	6.0	3.0
Information Development	210.0	92.0
ID-701	20.0	10.0
ID-711	50.0	20.0
* ID-712	30.0	20.0
ID-713	100.0	40.0
* ID-714	5.0	1.0
ID-715	5.0	1.0
Regulation	83.0	20.5
R-701	15.0	5.0
R-702	65.0	15.0
R-711	3.0	0.5

Table 15 (cont'd.)

Function	Manpower (manweeks)	
	Professional	Secretarial
Technical Assistance	96.0	24.0
TA-701	36.0	8.0
TA-702	14.0	4.0
TA-703	5.0	2.0
TA-711	15.0	5.0
TA-712	4.0	0.5
TA-714	10.0	2.0
TA-714	10.0	2.0
TA-715	2.0	0.5
Total Manpower Requirement* For FY 1971	541.0	200.5

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*Functional areas that must be curtailed or eliminated to conform with previously projected manpower requirements estimated prior to the development of this plan.

FISCAL YEAR 1972 FUNCTIONS

ADMINISTRATION

A-691: Department of Health Requirements

Manpower Allocation (manweeks)

Professional - 40

Secretarial - 40

* **A-701: Federal Programs Administration**

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

A-706: Educational Institution Research

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-707: Management Plan Review

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-713: Health Department Coordination

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 3

A-714: Staff Development

Manpower Allocation (manweeks)

Professional - 48

Secretarial - 12

A-715: Mining Regulations Development

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 1

A-718: Reduction Processes Review Program

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A-719: Education Publications Program

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 3

A-721: Hazardous Waste Collection and Hauling Program–review collection and hauling practices and the various forms of hazardous waste, in coordination with other applicable regulatory agencies, and recommend to the appropriate agencies means for improving these practices and their regulation in order to assure the protection of the public health and the natural environment

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

A-722: Hospital Waste Program–develop a program, in coordination with the Medical Care Standards Program of the Kentucky State Department of Health, in order to determine the types and volume of solid waste generated at hospitals throughout the Commonwealth in order to assure that the storage, collection, hauling, processing, and ultimate disposal of such waste does not create hazards to the public health and the natural environment

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

A-723: Interstate Waste Disposal–undertake the development of a coordinated program with the Department of Motor Transportation to obtain, on a regular basis, information on motor carriers and the volume by weight of solid waste that enters the Commonwealth of Kentucky via its several highways, in order to determine the disposition of this waste to assure that it is disposed of at approved ultimate disposal sites

Manpower Allocation (manweeks)

Professional - 3

Secretarial - 1

A-724: Abandoned Vehicles–undertake a continuing program, in coordination with the Kentucky Highway Department to investigate the several alternatives for collecting and safely disposing of abandoned vehicles or other bulky waste. In conjunction with the development of these efforts, the Solid Waste Program will endeavor to establish feasible methods whereby intermediate storage points or areas for bulky waste immediately adjacent to highway rights-of-way may be established

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

INFORMATION DEVELOPMENT

ID-701: System Development Guidelines

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 10

ID-711: Policies Manual

Manpower Allocation (manweeks)

Professional - 25

Secretarial - 10

ID-712: Data and Materials Maintenance System

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 40

ID-713: Industrial Activities Information

Manpower Allocation (manweeks)

Professional - 100

Secretarial - 40

ID-714: Technical Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-715: Training and Development Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-721: Legislation Codification Revision—revise codified materials of the Kentucky Revised Statutes and Kentucky Administrative Regulations on a biennial basis in order to maintain current information on statues and regulations affecting solid waste management in Kentucky

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 2

ID-722: Hospital Waste Data and Information—obtain and maintain information on the disposition of waste from hospitals throughout the Commonwealth in order to assure that the storage, collection, hauling, processing, and ultimate disposal of such waste does not create hazards to the public health and the natural environment

Manpower Allocation (manweeks)

Professional - 3

Secretarial - 2

ID-723: **Interstate Waste Transportation Data**–obtain and maintain information on motor carriers and the volume by weight of solid waste that enters the Commonwealth via its several highways in order to determine the disposition of this waste to assure that it is disposed of at approved ultimate disposal sites

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

ID-724: **Junkyard Regulation Information**–develop information on the manner in which other states regulate junkyards in order to develop more acceptable means for controlling the disposition of junk motor vehicles within the Commonwealth

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

REGULATION

R-701: **Applications Review**

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

R-702: Disposal Site Inspection

Manpower Allocation (manweeks)

Professional - 55

Secretarial - 20

R-711: Garbage and Refuse Disposal District Plan Review

Manpower Allocation (manweeks)

Professional - 3.0

Secretarial - 0.5

TECHNICAL ASSISTANCE

TA-701: Regional and Local Planning Assistance

Manpower Allocation (manweeks)

Professional - 36

Secretarial - 8

TA-702: Information and Technical Assistance

Manpower Allocation (manweeks)

Professional - 14

Secretarial - 4

TA-703: Permit Applicants Conferences

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

TA-711: Federal Program Assistance

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

TA-712: Administrative Service Training

Manpower Allocation (manweeks)

Professional - 4.0

Secretarial - 0.5

TA-713: Public Officials Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-714: State Agencies Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-715: Public Education

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A summary of total manpower allocation requirements for Fiscal Year 1972 appears in Table 16.

Table 16
Manpower Allocation Summary
Solid Waste Program
FY 1972 Functions

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Administration	160.0	76.0
A-691	40.0	40.0
A-701	2.0	1.0
A-706	4.0	1.0
A-707	4.0	1.0
A-713	20.0	3.0
A-714	48.0	12.0
A-715	6.0	1.0
A-718	5.0	2.0
A-719	6.0	3.0
A-721	2.0	1.0
A-722	10.0	5.0
A-723	3.0	1.0
A-724	10.0	5.0
Information Development	177.0	109.0
ID-701	20.0	10.0
ID-711	25.0	10.0
ID-712	10.0	40.0
ID-713	100.0	40.0
ID-714	5.0	1.0
ID-715	5.0	1.0

Table 16 (cont'd.)

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Information Development		
ID-721	2.0	2.0
ID-722	3.0	2.0
ID-723	2.0	1.0
ID-724	5.0	2.0
Regulation	73.0	25.5
R-701	15.0	5.0
R-702	55.0	20.0
R-711	3.0	0.5
Technical Assistance	99.0	25.5
TA-701	36.0	8.0
TA-702	14.0	4.0
TA-703	5.0	2.0
TA-711	15.0	5.0
TA-712	4.0	0.5
TA-713	10.0	2.0
TA-714	10.0	2.0
TA-715	5.0	2.0
Total Manpower Requirements For FY 1972	509.0	236.0

FISCAL YEAR 1973 FUNCTIONS

ADMINISTRATION

A-691: Department of Health Requirements

Manpower Allocation (manweeks)

Professional - 40

Secretarial - 40

A-701: Federal Programs Administration

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

A-706: Educational Institution Research

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-707: Management Plan Review

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-713: Health Department Coordination

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 3

A-714: Staff Development

Manpower Allocation (manweeks)

Professional - 48

Secretarial - 12

A-718: Reduction Processes Review Program

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A-719: Education Publications Program

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 3

A-721: Hazardous Waste Collection and Hauling Program

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-722: Hospital Waste Program

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

A-723: Interstate Waste Disposal

Manpower Allocation (manweeks)

Professional - 3

Secretarial - 1

A-724: Abandoned Vehicles

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

A-731: Franchise and Other Contractor Practices Program—evaluate the franchise, or other contract mechanisms, used by private solid waste collectors in Kentucky in order to develop regulatory procedures to assure that dependable and efficient collection services are provided to the citizens of the Commonwealth

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

A-732: Storage Regulations Review—review existing storage practices and regulatory procedures related to other agencies with responsibilities for solid waste to determine their adequacy in the light of the available information and recommend to the appropriate agencies means for improving storage practices and their regulation

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 5

A-733: Department of Agriculture Coordination—establish a program with the Department of Agriculture to obtain information on the disposition of garbage as feed to swine

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-734: **Recycling Review Program** - develop procedures for the investigation of recycling operations within Kentucky and the potentials for expanding these practices

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

INFORMATION DEVELOPMENT

ID-701: System Development Guidelines

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 4

ID-711: Policies Manual

Manpower Allocation (manweeks)

Professional - 25

Secretarial - 10

ID-712: Data and Materials Maintenance System

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 40

ID-713: Industrial Activities Information

Manpower Allocation (manweeks)

Professional - 50

Secretarial - 20

ID-714: Technical Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-715: Training and Development Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-722: Hospital Waste Data and Information

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

ID-723: Interstate Waste Transportation Data

Manpower Allocation (manweeks)

Professional - 1

Secretarial - 2

ID-724: Junkyard Regulation Information

Manpower Allocation (manweeks)

Professional - 1

Secretarial - 1

ID-731: Garbage Feeding Information—develop and maintain a reporting system on the disposition of garbage for feeding livestock in order to establish the disposition of the nonedible portions

Manpower Allocation (manweeks)

Professional - 8

Secretarial - 4

ID-732: Storage Practices Information—develop and maintain information on solid waste storage practices within the Commonwealth in order to determine their adequacy and assure that the public health and the natural environment are protected

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 15

ID-733: Collection and Hauling Practices—obtain and maintain information on collection, hauling, and disposal practices within the Commonwealth in order to assure that the public health and the natural environment are protected

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 4

ID-734: **Recycling Practices and Potentials Information**—conduct investigations, analyze data collected and maintain records on recycling operations in Kentucky and the potentials for expanding these practices

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 10

REGULATION

R-701: **Applications Review**

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

R-702: **Disposal Site Inspection**

Manpower Allocation (manweeks)

Professional - 55

Secretarial - 20

R-711: **Garbage and Refuse Disposal District Plan Review**

Manpower Allocation (manweeks)

Professional - 3.0

Secretarial - 0.5

R-731: **Industrial Waste Disposal Inspections**--routinely inspect and enforce regulations established for the safe disposal of solid waste from industries in Kentucky

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

TECHNICAL ASSISTANCE

TA-701: **Regional and Local Planning Assistance**

Manpower Allocation (manweeks)

Professional - 36

Secretarial - 8

TA-702: **Information and Technical Assistance**

Manpower Allocation (manweeks)

Professional - 14

Secretarial - 4

TA-703: **Permit Applicants Conferences**

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

TA-711: Federal Program Assistance

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

TA-712: Administration Service Training

Manpower Allocation (manweeks)

Professional - 4.0

Secretarial - 0.5

TA-713: Public Officials Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-714: State Agencies Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-715: Public Education

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A summary of total manpower requirements for Fiscal Year 1973 appears in Table 17.

Table 17
Manpower Allocation Summary
Solid Waste Program
FY 1973 Functions

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Administration	187.0	86.0
A-691	40.0	40.0
A-701	2.0	1.0
A-706	4.0	1.0
A-707	4.0	1.0
A-713	20.0	3.0
A-714	48.0	12.0
A-718	5.0	2.0
A-719	6.0	3.0
A-721	1.0	0.5
A-722	10.0	5.0
A-723	3.0	1.0
A-724	10.0	5.0
A-731	10.0	5.0
A-732	20.0	5.0
A-733	2.0	0.5
A-734	2.0	1.0
Information Development	156.0	112.5
ID-701	10.0	4.0
ID-711	25.0	10.0
ID-712	10.0	40.0
ID-713	50.0	20.0
ID-714	5.0	1.0
ID-715	5.0	1.0
ID-722	1.0	0.5
ID-723	1.0	2.0
ID-724	1.0	1.0
ID-731	8.0	4.0
ID-732	10.0	15.0
ID-733	10.0	4.0
ID-734	20.0	10.0

Table 17 (cont'd.)

Function	Manpower (manweeks)	
	Professional	Secretarial
Regulation	83.0	30.5
R-701	15.0	5.0
R-702	55.0	20.0
R-711	3.0	0.5
R-731	10.0	5.0
Technical Assistance	99.0	25.5
TA-701	36.0	8.0
TA-702	14.0	4.0
TA-703	5.0	2.0
TA-711	15.0	5.0
TA-712	4.0	0.5
TA-713	10.0	2.0
TA-714	10.0	2.0
TA-715	5.0	2.0
Total Manpower Requirements For FY 1973	525.0	254.5

FISCAL YEAR 1974 FUNCTIONS

ADMINISTRATION

A-691: Department of Health Requirements

Manpower Allocation (manweeks)

Professional - 40

Secretarial - 40

A-701: Federal Programs Administration

Manpower Allocation (manweeks)

Professional - 2

Secretarial - 1

A-706: Educational Institution Research

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-707: Management Plan Review

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 1

A-711: Review of Organizational Structure

Manpower Allocation (manweeks)

Professional - 2.0

Secretarial - 0.5

A-713: Health Department Coordination

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 3

A-714: Staff Development

Manpower Allocation (manweeks)

Professional - 48

Secretarial - 12

A-718: Reduction Processes Review Program

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A-719: Education Publications Program

Manpower Allocation (manweeks)

Professional - 6

Secretarial - 3

A-721: Hazardous Waste Collection and Hauling Program

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-723: Hospital Waste Program

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-724: Abandoned Vehicles

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 3

A-732: Storage Regulations Review

Manpower Allocation (manweeks)

Professional - 3

Secretarial - 1

A-733: Department of Agriculture Coordination

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-734: Recycling Review Program

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

A-741: Livestock Feces Disposal Program--evaluate occurrence of problems developing from the accumulation of feces at livestock markets, animal feedlots, race tracks, and at intensive livestock or poultry raising enterprises and transmit recommended actions for the solution of these problems to the Commissioner of Health

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 4

INFORMATION DEVELOPMENT

ID-701: System Development Guidelines

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 4

ID-711: Policies Manual

Manpower Allocation (manweeks)

Professional - 25

Secretarial - 10

ID-712: Data and Materials Maintenance System

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 40

ID-714: Technical Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-715: Training and Development Information

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 1

ID-721: Legislation Codification Revision

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 3

ID-722: Hospital Waste Data and Information

Manpower Allocation (manweeks)

Professional - 1.0

Secretarial - 0.5

ID-723: Interstate Waste Transportation Data

Manpower Allocation (manweeks)

Professional - 1

Secretarial - 2

ID-724: Junkyard Regulation Information

Manpower Allocation (manweeks)

Professional - 1

Secretarial - 1

ID-731: Garbage Feeding Information

Manpower Allocation (manweeks)

Professional - 4

Secretarial - 8

ID-732: Storage Practices Information

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 15

ID-733: Collection and Hauling Practices

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 5

ID-734: Recycling Practices and Potentials Information

Manpower Allocation (manweeks)

Professional - 50

Secretarial - 20

ID-741: **Livestock Feces Disposition Information**—obtain and maintain information on major generation sources of animal feces in order to remain apprised of the magnitude of this problem, and if necessary, to establish or recommend the establishment of revised or new regulatory measures

Manpower Allocation (manweeks)

Professional - 25

Secretarial - 10

ID-742: **Directory of Private Collectors and Haulers (ID-733)**—from data developed, compile and publish a directory of all private collectors and haulers in Kentucky

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 15

REGULATION

R-701: **Applications Review**

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

R-702: **Disposal Site Inspection**

Manpower Allocation (manweeks)

Professional - 55

Secretarial - 20

R-711: **Garbage and Refuse Disposal District Plan Review**

Manpower Allocation (manweeks)

Professional - 3.0

Secretarial - 0.5

R-731: **Industrial Waste Disposal Inspections**

Manpower Allocation (manweeks)

Professional - 30

Secretarial - 5

R-741: **Agricultural Waste Disposal Inspections**—routinely inspect and enforce regulations for the safe disposal of solid waste from agricultural enterprises in Kentucky

Manpower Allocation (manweeks)

Professional - 20

Secretarial - 5

TECHNICAL ASSISTANCE

TA-701: **Regional and Local Planning Assistance**

Manpower Allocation (manweeks)

Professional - 36

Secretarial - 8

TA-702: Information and Technical Assistance

Manpower Allocation (manweeks)

Professional - 14

Secretarial - 4

TA-703: Permit Applicants Conferences

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

TA-711: Federal Program Assistance

Manpower Allocation (manweeks)

Professional - 15

Secretarial - 5

TA-712: Administrative Service Training

Manpower Allocation (manweeks)

Professional - 4.0

Secretarial - 0.5

TA-713: Public Officials Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-714: State Agencies Training

Manpower Allocation (manweeks)

Professional - 10

Secretarial - 2

TA-715: Public Education

Manpower Allocation (manweeks)

Professional - 5

Secretarial - 2

A summary of total manpower requirements for Fiscal Year 1974 appears in Table 18.

Table 18
Manpower Allocation Summary
Solid Waste Program
FY 1974 Functions

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Administration	153.0	73.5
A-601	40.0	40.0
A-701	2.0	1.0
A-706	4.0	1.0
A-707	4.0	1.0
A-711	2.0	0.5
A-713	20.0	3.0
A-714	48.0	12.0
A-718	5.0	2.0
A-719	6.0	3.0
A-721	1.0	0.5
A-723	1.0	0.5
A-724	5.0	3.0
A-732	3.0	1.0

Table 18 (cont'd.)

Function	Manpower (manweeks) *Professional*	 *Secretarial*
Administration		
A-733	1.0	0.5
A-734	1.0	0.5
A-741	10.0	4.0
Information Development	176.0	135.5
ID-701	10.0	4.0
ID-711	25.0	10.0
ID-712	10.0	40.0
ID-714	5.0	1.0
ID-715	5.0	1.0
ID-721	4.0	3.0
ID-722	1.0	0.5
ID-723	1.0	2.0
ID-724	1.0	1.0
ID-731	4.0	9.0
ID-732	10.0	15.0
ID-733	10.0	5.0
ID-734	50.0	20.0
ID-741	25.0	10.0
ID-742	15.0	15.0
Regulation	123.0	35.5
R-701	15.0	5.0
R-702	55.0	20.0
R-711	3.0	0.5
R-731	30.0	5.0
R-741	20.0	5.0
Technical Assistance	99.0	25.5
TA-701	36.0	8.0
TA-702	14.0	4.0
TA-703	5.0	2.0
TA-711	15.0	5.0
TA-712	4.0	0.5

Table 18 (cont'd.)

Function	*Manpower (manweeks)*	
	Professional	*Secretarial*
Technical Assistance		
TA-713	10.0	2.0
TA-714	10.0	2.0
TA-715	5.0	2.0
Total Manpower Requirements For FY 1974	551.0	270.0

Table 19 - 22 summarize the Kentucky Solid Waste Program's manpower requirements by category, during the initial five-year-plan period. Based upon manpower requirements summarized in Table 23, during Fiscal Year 1971, a staff of eleven professional and four secretarial employees or their equivalent will be essential in order to provide the range of services necessary to perform the Program's functions. Following this initial development phase, in Fiscal Year 1972, at least 10 professional and five secretarial employees will be necessary. By Fiscal Year 1974, a Program staff of eleven professionals and six secretaries will be required to perform programed activities for Kentucky's Comprehensive Solid Waste Management Program.

Table 19
Summary of Manpower Allocations
Administration Functions
Fiscal Years 1970-1974
(manweeks)

	Activity Type	1970		1971		1972		1973		1974	
		Prof.	Sec.	Prof.	Sec.	Prof.	Sec.	Prof.	Sec.	Prof.	Sec.
A-691	Department of Health Requirements	45.0	24.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
A-701	Federal Programs Administration	4.0	2.0	4.0	2.0	2.0	1.0	2.0	1.0	2.0	1.0
A-702	Permit Charges Investigation	2.0	0.5	----	----	----	----	----	----	----	----
A-703	Compliance by State Agencies	1.0	1.0	----	----	----	----	----	----	----	----
A-704	Use of Other Agency Personnel	1.0	0.5	----	----	----	----	----	----	----	----
A-705	Department of Public Safety Coordination	1.0	0.5	----	----	----	----	----	----	----	----
A-706	Educational Institution Research	10.0	2.0	10.0	2.0	4.0	1.0	4.0	1.0	4.0	1.0
A-707	Management Plan Review	4.0	1.0	4.0	1.0	4.0	1.0	4.0	1.0	4.0	1.0
A-711	Review of Organizational Structure			2.0	0.5	----	----	----	----	2.0	0.5
A-712	Interagency Review			2.0	0.5	----	----	----	----	----	----
A-713	Health Department Coordination			40.0	5.0	20.0	3.0	20.0	3.0	20.0	3.0
A-714	Staff Development			24.0	6.0	48.0	12.0	48.0	12.0	48.0	12.0
A-715	Mining Regulations Development			6.0	1.0	6.0	1.0	----	----	----	----
A-716	Highway Department Coordination			2.0	0.5	----	----	----	----	----	----
A-717	Department of Motor Transportation Coordination			2.0	0.5	----	----	----	----	----	----
A-718	Reduction Processes Review Program			10.0	2.0	5.0	2.0	5.0	2.0	5.0	2.0
A-719	Education Publications Program			6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0
A-721	Hazardous Waste Collection & Hauling Program					2.0	1.0	1.0	0.5	1.0	0.5
A-722	Hospital Waste Program					10.0	5.0	10.0	5.0	----	----
A-723	Interstate Waste Disposal					3.0	1.0	3.0	1.0	1.0	0.5
A-724	Abandoned Vehicles					10.0	5.0	10.0	5.0	5.0	3.0
A-731	Franchise & Other Contractor Practices Program							10.0	5.0	----	----
A-732	Storage Regulations Review							20.0	5.0	3.0	1.0
A-733	Department of Agriculture Coordination							2.0	0.5	1.0	0.5
A-734	Recycling Review Program							2.0	1.0	1.0	0.5
A-741	Livestock Feces Disposal Program									10.0	4.0
	TOTALS	68.0	31.5	152.0	64.0	160.0	76.0	187.0	86.0	153.0	73.5

Table 20
Summary of Manpower Allocations
Information Development Functions
Fiscal Years 1970-1974
(manweeks)

	Activity Type	*1970*		*1971*		*1972*		*1973*		*1974*	
		Prof.	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*
ID-701	System Development Guidelines	4.0	1.0	20.0	10.0	20.0	10.0	10.0	4.0	10.0	4.0
ID-702	Initial Solid Waste Management Plan	58.0	7.0	---	----	----	----	----	----	----	----
ID-711	Policies Manual			50.0	20.0	25.0	10.0	25.0	10.0	25.0	10.0
ID-712	Data & Materials Maintenance System			30.0	20.0	10.0	40.0	10.0	40.0	10.0	40.0
ID-713	Industrial Activities Information			100.0	40.0	100.0	40.0	50.0	20.0	----	----
ID-714	Technical Information			5.0	1.0	5.0	1.0	5.0	1.0	5.0	1.0
ID-715	Training & Development Information			5.0	1.0	5.0	1.0	5.0	1.0	5.0	1.0
ID-721	Legislation Codification Revision					2.0	2.0	----	----	4.0	3.0
ID-722	Hospital Waste Data & Information					3.0	2.0	1.0	0.5	1.0	0.5
ID-723	Interstate Waste Transportation Data					2.0	1.0	1.0	2.0	1.0	2.0
ID-724	Junkyard Regulation Information					5.0	2.0	1.0	1.0	1.0	1.0
ID-731	Garbage Feeding Information							8.0	4.0	4.0	8.0
ID-732	Storage Practices Information							10.0	15.0	10.0	15.0
ID-733	Collection & Hauling Practices							10.0	4.0	10.0	5.0
ID-734	Recycling Practices & Potentials Information							20.0	10.0	50.0	20.0
ID-741	Livestock Feces Disposition Information									25.0	10.0
ID-742	Directory of Private Collectors & Haulers									15.0	15.0
	TOTALS	62.0	8.0	210.0	92.0	177.0	109.0	156.0	112.5	176.0	135.5

Table 21
Summary of Manpower Allocations
Regulation Functions
Fiscal Years 1970-1974
(manweeks)

		1970		*1971*		*1972*		*1973*		*1974*	
	Activity Type	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*
R-701	Applications Review	25.0	2.0	15.0	5.0	15.0	5.0	15.0	5.0	15.0	5.0
R-702	Disposal Site Inspection	75.0	10.0	65.0	15.0	55.0	20.0	55.0	20.0	55.0	20.0
R-711	Garbage & Refuse Disposal District Plan Review			3.0	0.5	3.0	0.5	3.0	0.5	3.0	0.5
R-731	Industrial Waste Disposal Inspections							10.0	5.0	30.0	5.0
R-741	Agricultural Waste Disposal Inspections									20.0	5.0
	TOTALS	100.0	12.0	83.0	20.5	73.0	25.5	83.0	30.5	123.0	35.5

Table 22
Summary of Manpower Allocations
Technical Assistance Functions
Fiscal Years 1970-1974
(manweeks)

		1970		*1971*		*1972*		*1973*		*1974*	
	Activity Type	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*
TA-691	Solid Waste Film	4.0	1.0	----	----	----	----	----	----	----	----
TA-701	Regional & Local Planning Assistance	6.0	4.0	36.0	8.0	36.0	8.0	36.0	8.0	36.0	8.0
TA-702	Information & Technical Assistance	4.0	2.0	14.0	4.0	14.0	4.0	14.0	4.0	14.0	4.0
TA-703	Permit Applicants Conferences	5.0	2.0	5.0	2.0	5.0	2.0	5.0	2.0	5.0	2.0
TA-711	Federal Program Assistance			15.0	5.0	15.0	5.0	15.0	5.0	15.0	5.0
TA-712	Administrative Service Training			4.0	0.5	4.0	0.5	4.0	0.5	4.0	0.5
TA-713	Public Officials Training			10.0	2.0	10.0	2.0	10.0	2.0	10.0	2.0
TA-714	State Agencies Training			10.0	2.0	10.0	2.0	10.0	2.0	10.0	2.0
TA-715	Public Education			2.0	0.5	5.0	2.0	5.0	2.0	5.0	2.0
	TOTALS	19.0	9.0	96.0	24.0	99.0	25.5	99.0	25.5	99.0	25.5

Table 23
Summary of Manpower Allocations
Solid Waste Program
Fiscal Years 1971-1974
(manweeks)

	Administration		*Information Development*		*Regulation*		*Technical Assistance*		*Total*	
	Prof.	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*	*Prof.*	*Sec.*
FY 1971	152.0	64.0	210.0	92.0	83.0	20.5	96.0	24.0	541.0	200.5
FY 1972	160.0	76.0	177.0	109.0	73.0	25.5	99.0	25.5	509.0	236.0
FY 1973	187.0	86.0	156.0	112.5	83.0	30.5	99.0	25.5	525.0	254.5
FY 1974	153.0	73.5	176.0	135.5	123.0	35.5	99.0	25.5	551.0	270.0

MAIN REPORT APPENDIX

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Table 1
Population Projections of the Commonwealth of Kentucky by Selected Years*

District Number	*Area Development District*	*Area Development District Population*				
		1960	*1970*	*1975*	*1980*	*2000*
1	Purchase	156,937	178,534	194,451	211,802	288,400
2	Pennyrile	178,061	198,357	220,857	244,940	353,661
3	Green River	165,298	188,007	200,921	214,892	277,680
4	Barren River	170,463	212,698	243,068	276,998	441,472
5	Lincoln Trail	177,864	188,254	195,787	204,149	241,756
6	Jefferson	680,323	814,611	884,546	959,911	1,291,752
7	Northern Kentucky	268,982	298,201	314,511	332,305	411,503
8	Buffalo Trace	52,324	55,498	58,765	62,409	80,024
9	Gateway	50,715	53,477	56,546	60,025	74,594
10	FIVCO	120,682	138,612	150,554	163,785	220,879
11	Big Sandy	151,011	149,457	158,635	168,137	206,565
12	Kentucky River	128,179	101,702	104,451	107,254	117,324
13	Cumberland Valley	206,176	200,267	210,180	221,278	271,955
14	Lake Cumberland	145,923	148,982	153,439	158,845	191,053
15	Bluegrass	385,218	493,142	563,875	641,599	992,523
	TOTAL	3,038,156	3,419,799	3,710,586	4,028,329	5,461,141

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*The population data presented in this table are in all cases the high projections for the 1960-2000 time period.

Source: Kentucky Program Development Office, Population Projections for the Commonwealth of Kentucky to the Year 2000 (Frankfort, Ky., June 1969). Kentucky Program Development Office, Population Projections for the Commonwealth of Kentucky to the Year 2000 - Technical Supplement (Frankfort, Ky., June 1969).

Table 2
Percent Change in Population of the Commonwealth of Kentucky

District Number	*Area Development District*	*1960-1970*	*Expected Percent Change*		
			1970-1975	*1960-1980*	*1960-2000*
1	Purchase	13.76	8.92	34.96	83.77
2	Pennyrile	11.40	11.34	37.56	98.62
3	Green River	13.74	6.87	30.00	67.99
4	Barren River	24.78	14.28	62.50	158.98
5	Lincoln Trail	5.84	4.00	14.78	35.92
6	Jefferson	19.74	8.59	41.10	89.87
7	Northern Kentucky	10.86	5.47	23.54	52.44
8	Buffalo Trace	6.07	5.89	19.27	52.94
9	Gateway	5.45	5.74	18.36	47.08
10	FIVCO	14.86	8.62	35.72	83.03
11	Big Sandy	- 1.03	6.14	11.34	36.79
12	Kentucky River	- 20.66	2.70	- 16.32	- 8.47
13	Cumberland Valley	- 2.87	4.95	7.32	36.90
14	Lake Cumberland	2.10	2.99	8.86	30.93
15	Bluegrass	28.02	14.34	66.55	157.65

Source: Numbers adapted from Kentucky Program Development Office, Population Projections for the Commonwealth of Kentucky to the Year 2000 (Frankfort, Ky., 1969).

Table 3
Number of Establishments* in the State by Area Development District and Employee Size Category
1967

District Number	*Area Development District*	*Agriculture*	*Mining*	*Construction*	*Manufacturing*	*Transportation*	*Trade*	*Finance*	*Services*	*Total*
				Employee Size Category						
1	Purchase	32	8	307	175	152	1,374	241	774	3,063
2	Pennyrile	21	82	247	169	153	1,277	193	680	2,822
3	Green River	14	163	260	199	122	1,218	224	772	2,972
4	Barren River	30	57	272	199	152	1,342	202	683	2,937
5	Lincoln Trail	13	17	167	115	115	912	143	469	1,951
6	Jefferson	78	20	1,210	821	414	4,488	1,235	3,599	11,865
7	Northern Kentucky	14	4	414	190	132	1,727	306	969	3,756
8	Buffalo Trace	5	2	56	45	44	360	56	155	723
9	Gateway	6	9	52	52	44	319	43	167	692
10	FIVCO	7	37	123	97	60	665	149	414	1,552
11	Big Sandy	1	327	71	47	91	668	81	286	1,572
12	Kentucky River	NA	198	41	41	73	507	56	190	1,126
13	Cumberland Valley	7	138	143	136	145	1,037	144	562	2,312
14	Lake Cumberland	23	37	166	169	110	864	95	404	1,863
15	Bluegrass	73	42	865	390	273	2,934	704	2,083	7,364
	Statewide†	4	42	141	54	29	483	82	120	955
	TOTAL	328	1,183	4,535	2,894	2,109	20,175	3,954	12,327	47,505

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*Numbers are indicative only and, because of disclosure problems, are incomplete.

†The Statewide classification reflects the number of establishments without a fixed location, with a significant number of employees in more than one county or of unknown county origin.

Source: U. S. Department of Commerce, Kentucky County Business Patterns, 1967 (Washington, D. C., 1967).

Table 4
Number of Establishments in the State by Industry Division and Size Category* 1967

Size Category of Establishment
(number of employees)

Industry Division	1 - 3	4 - 7	8 - 19	20 - 49	50 - 99	100 - 249	249 - 499	500 or more	Total
Agriculture	192	68	48	13	5	2	0	0	328
Mining	395	232	336	158	45	23	8	6	1,183
Construction	2,483	920	680	321	86	41	3	1	4,535
Manufacturing	643	463	613	487	269	216	119	84	2,894
Transportation	1,001	368	390	208	86	44	8	5	2,110
Trade	10,480	4,469	3,626	1,223	270	80	17	10	20,175
Finance	2,328	742	579	216	54	21	6	3	3,958
Services	8,210	2,047	1,294	495	160	86	18	17	12,327
TOTAL	25,712	9,315	7,566	3,121	975	543	179	126	47,507

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*Numbers are indicative only and, because of disclosure problems, are incomplete.

Source: U. S. Department of Commerce, Kentucky County Business Patterns, 1967 (Washington, D. C., 1967).

Table 5
Community Survey Response
1969

District Number	Area Development District	Total Number of Communities Surveyed	Number of Respondent Communities	Number of Respondent Communities as a Percent of Total	Total 1960 Population in Surveyed Communities	1960 Population in Respondent Communities	Respondent Community Population as a Percent of Total
1	Purchase	21	11	52.4	72,750	12,514	17.2
2	Pennyrile	27	11	40.7	68,352	41,580	60.8
3	Green River	25	15	60.0	86,559	78,531	90.7
4	Barren River	20	6	30.0	67,515	40,548	60.1
5	Lincoln Trail	25	10	40.0	46,567	27,457	59.0
6	Jefferson	60	28	46.7	475,995	40,773	8.6
7	Northern Kentucky	52	29	55.8	189,092	157,850	83.5
8	Buffalo Trace	10	6	60.0	16,043	6,507	40.6
9	Gateway	7	4	57.1	12,722	11,016	86.6
10	FIVCO	13	7	53.8	50,314	40,078	80.0
11	Big Sandy	11	4	36.4	19,536	7,028	36.0
12	Kentucky River	8	3	37.5	10,453	5,742	54.9
13	Cumberland Valley	18	10	55.6	55,415	28,377	51.2
14	Lake Cumberland	16	6	37.5	31,925	14,166	44.4
15	Bluegrass	32	18	56.3	177,658	54,199	30.5
	Kentucky	345	168	48.7	1,380,896	566,366	41.0

Source: Solid Waste Program, Kentucky State Department of Health. "Community Survey," 1969.

Table 6
Respondent Communities Which Permit Backyard Burning
1969

District Number	*Area Development District*	*Number of Respondent Communities*	*Percent of Total Respondent Community Population*
1	Purchase	9	12.2
2	Pennyrile	7	51.7
3	Green River	10	35.8
4	Barren River	5	55.1
5	Lincoln Trail	2	7.4
6	Jefferson	6*	1.5
7	Northern Kentucky	7	3.3
8	Buffalo Trace	2*	3.1
9	Gateway	1	2.4
10	FIVCO	4	7.8
11	Big Sandy	2	7.6
12	Kentucky River	1	30.6
13	Cumberland Valley	4	9.8
14	Lake Cumberland	3	5.2
15	Bluegrass	5*	2.0
	Kentucky	68	9.0†

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*Non-response from one community.

†Total population of respondent communities that permit backyard burning—129,438.

Source: Solid Waste Program, Kentucky State Department of Health, "Community Survey," 1969.

Table 7
Respondent Communities With Compulsory Household Collection
1969

District Number	*Area Development District*	*Number of Respondent Communities*	*Percent of Total Respondent Community Population*
1	Purchase	1	0.5
2	Pennyrile	3*	41.1
3	Green River	2	55.2
4	Barren River	2	47.9
5	Lincoln Trail	6*	24.4
6	Jefferson	17†	6.3
7	Northern Kentucky	20*	79.1
8	Buffalo Trace	2*	16.6
9	Gateway	1	32.8
10	FIVCO	3*	72.1
11	Big Sandy	3	33.9
12	Kentucky River	1	17.0
13	Cumberland Valley	6	34.3
14	Lake Cumberland	3	39.1
15	Bluegrass	10**	13.1
	Kentucky	80	29.4††

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*Non-response from one community.

†Non-response from two communities.

**Non-response from three communities.

††Total population of respondent communities with compulsory household collection—405,470

Source: Solid Waste Program, Kentucky State Department of Health, "Community Survey," 1969.

Table 8
Respondent Communities With Residential Collection
1969

District Number	Area Development District	Public Collection: Number of Respondent Communities	Public Collection: Number of Places Serviced	Private Collection: Number of Respondent Communities	Private Collection: Number of Places Serviced
1	Purchase	2†	1,569	6	3,776
2	Pennyrile	3	10,629	4*	1,182
3	Green River	3	23,237	8	3,669
4	Barren River	2	9,300	2	2,161
5	Lincoln Trail	5	3,820	5	6,036
6	Jefferson	2	7,800	25*	6,925
7	Northern Kentucky	5	28,924	23	15,354
8	Buffalo Trace	2	1,200	4*	401
9	Gateway	0	0	2	650
10	FIVCO	1	-------	6*	1,934
11	Big Sandy	1	1,302	3	1,115
12	Kentucky River	1	400	1	920
13	Cumberland Valley	6**	6,710	5**	3,162
14	Lake Cumberland	4†	5,500	3†	662
15	Bluegrass	9	12,600	8*	2,492
	Kentucky	46	112,991	105	50,439

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*Non-response from one community.

†One community indicated both public and private collection.

**Two communities indicated both public and private collection.

Source: Solid Waste Program, Kentucky State Department of Health, "Community Survey," 1969.

Table 9
Respondent Communities With Business and Commercial Collection
1969

District Number	Area Development District	Public Collection: Number of Respondent Communities	Public Collection: Number of Places Serviced	Private Collection: Number of Respondent Communities	Private Collection: Number of Places Serviced
1	Purchase	2	135	8†	135
2	Pennyrile	2	367	4**	147
3	Green River	3	992	7	261
4	Barren River	2	1,799	2**	50
5	Lincoln Trail	5	475	5	567
6	Jefferson	2	510	11	294
7	Northern Kentucky	5	2,022	22	966
8	Buffalo Trace	1	100	4**	54
9	Gateway	0	0	1	100
10	FIVCO	0	0	6††	32
11	Big Sandy	1	114	2	80
12	Kentucky River	1	1	50	70
13	Cumberland Valley	5	686	4†	266
14	Lake Cumberland	3	260	2	60
15	Bluegrass	9*	993	8*	295
	Kentucky	41	8,454	136	3,377

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*Non-response from one community.

†One community indicated both public and private.

**One community did not indicate number of establishments.

††Three communities did not indicate number of establishments.

Source: Solid Waste Program, Kentucky State Department of Health, "Community Survey," 1969.

Table 10
Respondent Communities With Industrial Collection
1969

		Public Collection		Private Collection	
District Number	*Area Development District*	*Number of Respondent Communities*	*Number of Places Serviced*	*Number of Respondent Communities*	*Number of Places Serviced*
1	Purchase	0	0	5††	1
2	Pennyrile	1	44	1	3
3	Green River	3†	5	1	6
4	Barren River	2	13	1	3
5	Lincoln Trail	2	13	2	9
6	Jefferson	1	30	3	8
7	Northern Kentucky	1	2	7**	20
8	Buffalo Trace	1	2	0	0
9	Gateway	0	0	1	2
10	FIVCO	0	0	0	0
11	Big Sandy	0	0	0	0
12	Kentucky River	1	1	1	3
13	Cumberland Valley	1	1	0	0
14	Lake Cumberland	3	5	1	3
15	Bluegrass	4	14	5*	11
	Kentucky	20	130	28	72

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*Non-response from one community.

†One community did not indicate number of establishments.

**Two communities did not indicate number of establishments.

††Three communities did not indicate number of establishments.

Source: Solid Waste Program, Kentucky State Department of Health, "Community Survey," 1969.

Table 11
Kentucky School* Survey
Waste Collection and Disposal Practices
1969

District Number	Area Development District	Number of Schools	Number of Schools Indicating Waste Collection Method			Number of Schools Indicating Waste Disposal Method			
			Private Collection	Public Collection	School Employee Collection	On Site	Open Dump	Landfill	Incinerator
1	Purchase	100	28	24	68	15	33	35	51
2	Pennyrile	82	5	13	62	11	23	31	32
3	Green River	113	16	44	58	14	15	77	36
4	Barren River	65	10	14	47	18	29	28	10
5	Lincoln Trail	145	44	53	59	27	46	72	32
6	Jefferson	300	144	142	13	10	3	140	154
7	Northern Kentucky	165	52	65	19	12	31	82	35
8	Buffalo Trace	74	10	30	34	31	15	50	0
9	Gateway	28	8	4	16	0	16	3	14
10	FIVCO	56	18	11	35	13	29	14	22
11	Big Sandy	116	31	16	49	56	72	5	39
12	Kentucky River	158	8	3	95	53	109	0	66
13	Cumberland Valley	195	35	28	130	67	93	56	55
14	Lake Cumberland	94	22	29	43	44	70	8	13
15	Bluegrass	235	85	85	84	35	69	119	116
	TOTAL	1,976	516	561	812	406	653	720	675

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*Includes Public and Private, Elementary and Secondary Schools.

Source: Solid Waste Program, Kentucky State Department of Health, "Local Health Department School Survey," 1969.

Table 12
Kentucky Hospital Survey
Waste Collection and Disposal Practices
1969

District Number	Area Development District	Number of Hospitals	Number of Beds	Number of Hospitals Indicating Waste Collection Method: Private	Public	Hospital Employee	Number of Hospitals Indicating Waste Disposal Method: On Site	Open Dump	Landfill	Incinerator
1	Purchase	10	741	5	5	2	1	5	4	5
2	Pennyrile	13	2,556	3	4	5	4	4	6	3
3	Green River	8	789	2	6	2	0	1	8	0
4	Barren River	8	674	4	3	2	0	3	5	3
5	Lincoln Trail	5	345	1	4	0	1	0	4	2
6	Jefferson	19	5,715	6	13	3	0	0	3	16
7	Northern Kentucky	9	1,049	3	5	1	4	2	5	4
8	Buffalo Trace	4	536	2	1	1	3	1	1	4
9	Gateway	2	86	0	2	0	0	1	1	0
10	FIVCO	3	152	0	3	0	0	2	1	1
11	Big Sandy	6	280	1	4	1	0	6	0	2
12	Kentucky River	4	317	1	1	2	1	3	0	3
13	Cumberland Valley	13	775	3	7	3	2	3	6	5
14	Lake Cumberland	8	379	1	6	1	0	7	1	0
15	Bluegrass	24	4,547	7	13	10	8	9	9	13
	TOTAL	136	18,941	39	77	33	24	47	54	61

Source: Solid Waste Program, Kentucky State Department of Health, "Local Health Department Hospital Survey," 1969.

Table 13
Solid Waste Disposal Sites
General Character, Appearance, and Operational Problems
Commonwealth of Kentucky

Total Number of Disposal Sites	224
Number of Sanitary Landfills (43% x Sample Size)	21
Total Land Area to be Used for Disposal	3,575 Acres

	Percent of Total Number of Sites
General Character	
Quarry or Borrow Pit	8.6
Hillside	39.4
Gully - Canyon	15.4
Marsh or Flood Plain	1.4
Level Areas	18.1
Others	17.2
Appearance and Operational Problems	
Unsightly Appearance	86.1
Uncontrolled Blowing Paper	90.6
Routine Burning	75.8
Surface Water Draining Problems	22.0
Leaching Problems	22.0
Lowest Part of Fill is in Water Table	19.4

Source: Bureau of Solid Waste Management, 1968 National Survey of Community Solid Waste Practices, "Basic Data Reduction–Land Disposal Site Investigation Reports," U. S. Department of Health, Education, and Welfare, July, 1969.

Table 14
Summary of Illegal Dumps on Kentucky Highway Rights-of-Way, 1969

District Number	*Area Development District*	*Total Number of Counties*	*Number of Counties With No Report*	*Number of Dumps Reported*
1	Purchase	8	7	1
2	Pennyrile	9	3	15
3	Green River	7	5	3
4	Barren River	10	4	9
5	Lincoln Trail	8	0	57
6	Jefferson	7	7	0
7	Northern Kentucky	8	2	20
8	Buffalo Trace	5	2	22
9	Gateway	5	1	38
10	FIVCO	5	1	26
11	Big Sandy	5	0	39
12	Kentucky River	8	0	87
13	Cumberland Valley	8	0	294
14	Lake Cumberland	10	1	86
15	Bluegrass	17	4	79
	Kentucky	120	37	776

Source: Kentucky Department of Highways Survey, July-August, 1969.

Table 15
Disposal Site Inventory
Commonwealth of Kentucky, 1970

District Number	*Area Development District*	*State Permit Sites*	*Non-Permitted Sites*	*Total Number of Sites Identified*
1	Purchase	9	32	41
2	Pennyrile	4	29	33
3	Green River	1	22	23
4	Barren River	3	26	29
5	Lincoln Trail	3	27	30
6	Jefferson	12	16	28
7	Northern Kentucky	8	34	42
8	Buffalo Trace	2	11	13
9	Gateway	0	9	9
10	FIVCO	2	10	12
11	Big Sandy	0	41	41
12	Kentucky River	0	27	27
13	Cumberland Valley	2	27	29
14	Lake Cumberland	0	16	16
15	Bluegrass	5	42	47
	TOTAL	51	369	420

Note: The above data reflect generally recognized municipal, industrial and some large scale promiscuous ultimate disposal sites. These sites are generally exclusive of illegal dumps identified by the State Highway Department but include some larger roadside dumps.

Source: Solid Waste Program, Kentucky State Department of Health, March, 1970.